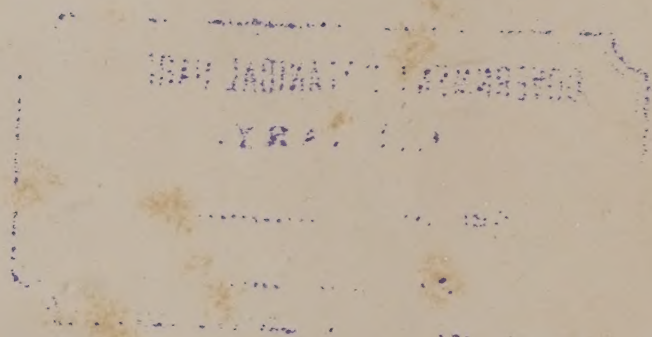


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THE

# COUNTRY GENTLEMAN'S MAGAZINE

A BOOK FOR THE COUNTRY HOUSE

*WITH EIGHTY-NINE ENGRAVINGS*

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JULY TO DEC. 1873

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THE  
COUNTRY GENTLEMAN'S MAGAZINE

A BOOK FOR THE COUNTRY HOUSE

JULY

*AN ENGLISHMAN ON AGRICULTURE IN IRELAND.*

By Mr TYRE.\*

I N 1858 a large landed proprietor between Athlone and Ballymore offered me a farm of 100 Irish acres, near the Shannon, which I took on a short lease. There was some nice grazing land on it, but what was broke was utterly run out, growing nothing but scutch grass, coltsfoot, and thistles. The most improving farmer on the townland told me that the best land about would not grow more than 12 barrels of oats to the Irish acre. Before I had been there three years I grew on what had been the most impoverished land 25 barrels of oats and 22 of barley to the Irish acre. I went to great expense in tillage, clearing the land of surface rocks, scrubs, and other impediments. I laid out a great deal of money there. An adjoining farm of 135 Irish acres with an excellent dwelling house on it, belonging to the same landlord, became vacant in the spring of 1862, and I then took out a lease for 31 years of the farm I was already in possession of, and the new one at 28s. per Irish acre. I also took a lease of another adjoining farm of 65 acres. I had good homesteads on all three farms. My landlord bound himself to drain certain lands and repair certain buildings. I was to execute the works and

was to pay 5 per cent. on the outlay. During the next four years I worked hard at sinking rivers, draining, clearing rocks, levelling old fences, building bridges, and other permanent improvements. I used to employ from thirty to fifty men, women, and boys. When I sent in the accounts, the landlord grumbled very much at the outlay—though he was only paying for the draining—all other land improvement I did at my own cost. The draining cost £6 per Irish acre, irrespective of rivers. The subsoil was either blue clay, full of rocks or manuring gravel, and in consequence; the drains were sometimes very difficult to sink. The minor drains were 4 feet deep, made of stones and tiles, and 40 feet apart. My landlord had done some easy draining in County Galway, and he considered no draining could pay costing more than £3 to £4 per Irish acre. I brought two or three gentlemen to look at the draining, who pronounced that it could not be done for less money. My landlord, however, was not satisfied, though he allowed that everything I did was well done. The farm was very unhealthy for stock, and every year I had met with heavy losses from every kind of disease amongst sheep and cattle—attributable, in my opinion, to the want of drainage. I then proposed to my landlord

\* Read before the Athy Farmers' Club.



that he should join me in borrowing money from the Board of Works, and I would pay the per-centage. This he refused, and wanted to stop the draining altogether. I was so disgusted that I gave notice of surrender, having a clause in my lease enabling me to do so. All the gentlemen in the neighbourhood took my part and endeavoured to persuade the landlord upon no account to let a tenant go who was doing so much good in the country; but no, he was himself an extensive grazier, and could not believe in the possibility of a large outlay in labour and tillage ever being remunerative.

#### CATTLE RAISING: LAND IMPROVEMENT.

To shew the profit a farmer could make on stock ten years ago—and which times appear to be gone by—in April and May 1863, I bought twenty-five small two-year-old heifers, at 5 guineas apiece, and in May 1864 sold them at £13, 5s. apiece. The only extra feeding they got besides grass, were a few turnips thrown out on the land, and a little hay during March, at a cost of about 10s. per head. The same year I got 2s. 3d. per lb. for wool. I had one field of 11 acres separate from the rest of the farm. It had been two or three small holdings, and was covered with rocks and scrubs, here and there cultivated in patches, but overgrown with scutch and coltsfoot. The first year I held it only fed five or six small heifers during the summer, and they got into no condition. It was dear at 10s. per acre. The land was very undulating, some parts of the field hilly and others a morass. I laid out on this field about £70 in clearing rocks, scrubs, &c., in addition to the money expended on draining. The last year I had a crop of rape in it which I fed off with sheep. When I was giving up, the landlord was offered for this field by itself 45s. per acre by several solvent tenants. Two years after, the only trial of mowing machines which has ever been held about Athlone was held in that field. I was not there, but I was told that the meadow was so heavy and lodged that none of the

machines could cut it. If I had been encouraged to remain there, in all probability by this time (it is only six years since I left), I should have had the entire farm drained and reclaimed, and the population would not have diminished. As it is, the lands are now in a worse state than when I left, and two of the farms have already changed hands twice. My immediate successor in the principal division of the farm, who was an intimate acquaintance of mine, was foully murdered four years ago.

#### ON THE DUKE OF LEINSTER'S ESTATE.

In March 1867, I took the Heath Farm and many of you are aware of the circumstances under which I entered upon it. There was a decided undertaking on the part of Mr Trench, the then agent, but whether the Duke of Leinster was aware of it I cannot say, that if the land was well farmed and cultivated the rent should not be raised at the expiration of the lease, but unfortunately that promise was not given in writing. Mr Hamilton, the present popular agent, supposing me to be making a fortune out of the farm, being himself, I presume, an extensive tillage farmer, or at all events well versed in the productiveness of land without the aid of such deleterious stuffs as artificial manures, and notably well acquainted with the highly productive powers of the soil of Heath Farm, thought it perfectly reasonable and fair to charge me 50 per cent. on my own outlay. Holding a different opinion, I applied to the Duke of Leinster, but he having farmed the lands himself, and having lost money by it (so report says, but I am open to correction on the production of the Duke's Heath Farm accounts shewing the contrary) I presume thought it a good opportunity of recouping himself for his losses, and wrote to me expressing his surprise at my raising any objections to his agent's valuation. When I took the farm I congratulated myself on becoming tenant to so great a nobleman. I had visited several parts of Ireland, and looked at many farms, most of which required great outlay in build-



ing and draining, so that when I first saw Heath Farm with its good offices and nicely laid out fields, it seemed like an oasis in the desert. Being an entire stranger to the natural sterility of the soil, I thought I had nothing to do but farm highly, and that I should soon turn it into good land. Never, however, was a farmer more deceived. I was under the impression that it was brought into its highest state of cultivation by the Duke before he let it to Mr Dodds, but from inquiries I have made I believe that by the use of artificial manures (taking the heart's blood out of it as Mr Hamilton says) or some other improper mode of farming, I have brought the farm into a better state than at any former period. At all events Mr Hamilton says that he can get 35s. per acre for it from a man with £3000 capital. I believe I have grown double the acreage of turnips the Duke ever did. If I am wrong the accounts in the Leinster office will shew it. Being rather obstinate, and not having made a fortune out of Heath Farm, or seeing any prospect of doing so in the future, I have succumbed and given up the farm rather than pay 50 per cent. on my own outlay. I have generally found that the first loss is the least, and though the giving up all of a hurry has been a great annoyance to me, still I thought it better to do so than sign the yearly agreement which the Duke's lawyers sent to me. Under present circumstances I have a claim for compensation under the Land Act, but if I had signed I should have had none. I am a little wiser than I was. Mine has been one of those cases mentioned by Lord Kildare to Mr Gladstone where a re-valuation of the holding has been considered necessary.

#### LEASES AND RENTS IN IRELAND.

I would suggest that, instead of long leases at fixed rents, that the rents should be adjusted every five or seven years, according to the average value of corn, meat, and other farm produce during the five or seven years previous, also taking into account the price of labour. I think tenants should be encouraged

to keep up their farms in the highest state of cultivation all through a lease, and I would endeavour to bring about such a happy state of things in this way:—When a landlord sets a farm in perfect order, as regards buildings, draining, &c., or himself undertakes to make such improvements where needed, I think a lease of 31 years would be sufficient for a tenant to recoup himself for his outlay in manures and tillages; but where a tenant had to build and drain he should get a 51 years' lease, in order to enable him to borrow money under the Board of Works. Every five or seven years the rent should be re-adjusted by arbitration, not on the condition of the farm, but on the average price of agricultural produce during the previous five or seven years, as the case may be. It could be very simply done. The landlord should appoint an extensive farmer of his acquaintance, and the tenant a friend of his own, and if they could not agree, let them call in a professional valuer to decide between them. They should also take note of the condition of the farm and all improvements made thereon since the beginning of the lease or last valuation, and give the tenant a kind of written certificate to that effect, which he could register if necessary, or, at all events, keep by him as evidence of his outlay on the farm. The tenant should at all times have the power of selling his interest in the farm to the highest bidder, who can give the landlord security that he has means to carry on the farm, but giving the landlord the option of purchase; at the expiration of a lease the landlord to be obliged to give the occupying tenant a new lease, if he desire it, the rent to be adjusted, as before, by arbitration, or else if he has any justifiable reason for turning him out, to pay him for all improvements made during the lease. By this means, I think the condition of the land would always be kept up, or, indeed, improving, instead of periodically deteriorating, as we usually see, towards the end of a lease, except in my own case of Heath Farm. By the plan of re-adjusting the rent, the tenant would be enabled to tide over bad times. I



see no reason why rents should not be re-adjusted as often as every three years. The dividends on every other kind of property are continually fluctuating, so why not rent, which is the dividend on money invested in land? I am not one of those who wish to

see landlords deprived of their just rights, but, at the same time, I hold that tenants have equal rights, and I believe that by some such mode of letting land as I now have proposed, both parties would be gainers in the end.

### *THE LANDLORD AND TENANT BILL IN DORSET.*

THE Dorset Chamber of Agriculture held a meeting recently to consider the Landlord and Tenant Bill. Mr R. Damen, of Dorchester, in moving a resolution approving of the Bill, remarked that whilst the measure afforded protection to the tenant with regard to capital, it likewise provided that the interests of the landlord should be protected. Mr J. Floyer, M.P., in speaking to the resolution, which was adopted, made the following remarks:—The Landlord and Tenant Bill was not likely to come upon the statute book this year. It had been introduced, like many other measures of importance had been, in one session, more for the sake of bringing the subject before the public, and especially before the notice of those whom it mostly concerned; and, if approved generally, then it might be proposed at any future time to become an Act of Parliament; but he did not think they could probably anticipate that this year, because the second reading of the Bill was not fixed till an early day in July. The object of the Landlord and Tenant Bill, as stated in the preamble, is, "That it is expedient, for the greater improvement of the land and the consequent increased production accruing therefrom, to proceed to legislate upon it." That took, no doubt, a very wide field, and no one could dispute the goodness of the object which was sought to be gained. It was not conceived with any special reference as to its objects between landlord and tenant, but was conceived with a view to

the public generally, with the desire to obtain the largest amount of food from the land, and for the public good. Of course, in trying to carry out that object the measure must affect the interests of landlords and tenants—not landlords alone, not tenants alone, but both—and he hoped these interests would be always considered together. He was quite sure the interests of landlords and tenants were united, that they sailed, as was popularly said, "in the same boat," and as a general rule—he did not say it was absolutely so—what was for the good of one was for the good of the other. That, he knew, however, had been a great deal disputed, both in the House of Commons and elsewhere, and especially so in regard to the question of local taxation. He had heard it argued by some friends in the House of Commons, and had heard of arguments urged elsewhere, that the question of taxation—local taxation—did not affect the tenants, but only the landlords. He said that this was no such thing; he maintained that it pressed upon both.

Now as to the principle of the Bill; the principle came in the first clause. It was this—that a tenant on quitting his holding should be able to claim compensation in respect of all improvements. That was a principle which it was not for him to advocate in words, because he had acted upon it for the last five-and-twenty years. The clause said "improvements:" but then they must take care that such should be really improvements.



There was a great deal of difference in opinion as to what were "improvements." Many tenants, when they came into occupation of a farm, made alterations which they considered improvements, but which the next one might consider to be anything but "improvements," and they could not agree; and this to a certain extent was the same between landlord and tenant. Some tenants thought certain things improvements, and laid out money on them. The landlord also might be induced to lay out money in making such, but the next tenant might say "I wish you had not done it; I think it is a great mistake." They should therefore be most careful to take care that such things were improvements. If they were improvements—unexhausted improvements that would remain on the land—nothing could be fairer than that the tenant should benefit from them. When, however, they came to look into the details of the Bill, some points arose upon which there might be considerable difference of opinion. He thought this Bill conceived too much in the interests of the out-going tenant rather than of the in-comer. He did not think they ought to legislate upon a principle of that kind. With regard to the great question of public expenditure, there were many persons who much advocated a great deal of consideration for posterity—who said they ought to be reducing their debt so as to provide for those who came after. Well, that might be right or it might be wrong, but he thought that, at any rate, they should take care of farms for those who come after them, and if the out-going tenant was to be merely considered, and his successor to be forgotten, he did not think that would, in the long run, be to the advantage of the farming classes. They must keep in view both parties, because in this question, he believed, practically speaking, that an in-coming tenant had, to a great extent, to meet the charges which might have been made upon the land. If the "improvement" was an improvement—and he did not think people would wish for money

to be paid unless it was so—that would be put down to the score of the farm, as of course it would be considered worth so much more money, and therefore he said the expenses really fell upon the in-coming tenant, and they must consider him as well as the one before him. There was another point in the Bill, and that was the scale of compensation; but he thought that left too much to arbitration. It appeared that the Bill under discussion left everything to arbitrators. Now, it must be remembered, they might have very good arbitrators and they might also have very bad ones; they might have those who gave everything to landlords, or those who gave everything to the tenant, and he did not think that was right. If he went into business, and especially if he had any occasion of paying money, he should like to know what he was about. He repeated that he thought the Bill left too much in the hands of arbitrators. There were certain provisions which to some extent fettered and controlled freedom of action on the part of both landlord and tenant, and he was averse to those provisions. It was true something of the sort might be found in the Landlord and Tenant Bill in Ireland; but it must be recollected in that country the holdings were small, and he thought it would be a great slur and a great disrespect to cast upon such a body of men as the agriculturists of Dorset that they could not take care of themselves. He thought the tenants of this county were quite as able to take care of themselves as the landlords were, and that they understood their business as well as any other class of men in the country. Therefore, to tie up their hands and say they should not make what contracts they liked, if they wished to make them with their landlords, was what he could not agree with; neither did his good friend the chairman concur in that view. He (Mr Floyer) was in favour of the greatest freedom of action on the part of both landlords and tenants. Certain legal provisions should be made, but there should be afforded security for the capital embarked.



*LAND TRANSFER.*

WE have had an opportunity of further considering Lord Selborne's Bill in several of its points, the result being, that, although the measure in its working will not be quite so simple as owners of land could wish, it will, to a very great extent, simplify land transactions. The Bill is surrounded with much technicality, and imposes very serious responsibilities; and certain it is that a very long period must elapse before owners will become sensible of its benefits. Very extensive powers are given to the Registrar to be appointed under the Act, who, although ostensibly associated with the Lord Chancellor and the Chancellor of the Exchequer as a "Board of Registry," will be, in fact, an absolute officer, and it will be competent for him to decide all questions of validity or priority. The Act also directs division into districts, and consequently divisional Registrars must be appointed, clothed with similar absolute powers. This, we fear, will not operate satisfactorily. Possibly, the officer who is appointed Registrar in association with the Board of Registry, will be an able and competent person, and in all respects worthy of the absolute power delegated to him. But it is hardly to be supposed that provincial sub-Registrars will be men of the same calibre; the nature of their duties, however, will be just as onerous, and they cannot be compelled to submit their decisions to any higher authority.

The substance of the several clauses in the Act, which define the mode of obtaining an absolute registration of Land, and which must be taken as the basis of any future dealings with it, appear to be amongst the most important for the consideration of landowners. The Registrar, in the first instance, upon the receipt of an application for a certified title, is to examine the same, in which duty he has an assistant officer called an Examiner. The

greatest care must be observed by the applicant, that his Land is accurately described, and its quantities correct, as absolute power is given to the Registrar to require any description of evidence he may consider necessary upon the Title, it being necessary to satisfy him that the applicant or his predecessors have been in possession of the land for twenty years anterior to the application to register. Provision is made in cases where opposition to registration is necessary by persons claiming adverse interests, such persons having liberty given them to oppose such registration before the Registrars in its entirety, or, "subject to any limitations, conditions, qualifications, or reservations." It is palpable from the wording of the Bill, that the intention of its framers is to enable lay persons to register their lands without the necessity of employing solicitors. This is no doubt an encroachment upon the interests of the legal profession, and coming perhaps from the hands of Lord Selborne, will create a certain amount of adverse expression, but be that as it may, we congratulate the public that the rusty machinery so long in vogue has been cast aside as useless, and the demand for free trade in land allowed by the legislature. We hold, however, that it will, under all circumstances when this Bill becomes law, be better for persons availing themselves of its new facilities, if not competent to act for themselves, to entrust their interests only to solicitors who are in every respect the best qualified to protect them. One of the great difficulties that a dealer in land, under the present system, has to encounter, is the comparative ignorance in which he is placed as to the cost of his dealings, and it not unfrequently happens that a miscalculation arises to his loss. We think that if in the schedules to this Act one was added, defining the charges, legal or



otherwise, it would greatly add to the facilities conferred by it. It is a very satisfactory reflection that the land law is about to emerge from the fearful labyrinth of legal brains, and become intelligible to the ordinary mind, and the old cumbersome system of burying a simple contract beneath a weight of words and parchment abrogated. It is, of course, probable that when the Bill has passed both Houses, and received the Royal assent, it may not present the same pleasant appearance that it does now, or the probability is the other way into it may be grafted some further and more abstract legislation.

At present there does not seem to be anything in the Bill at all prejudicial to the rights of owners, every clause either directly or indirectly benefits the landowner, but it is the administrative body, by whom we mean the lawyers, who are more directly affected, and who consequently are more likely to find fault with the measure. It is always necessary in Acts of Reform that some interests be affected, some unwilling concession demanded of the few for the benefit of the many, but we think Lord Selborne in this measure only does his duty to the country when its interests, so far as represented by free trade in land, are considered paramount.

### THE AGRICULTURAL LABOURERS' UNION.

MR THOMAS C. SCOTT, Knaphill Farm, Surrey, we think, puts the matter in a very fair light to the labourers. He says in a letter recently published :—

In towns, combinations to enhance the price of labour may be allowed more latitude in their actions, or, as sailors phrase it, "to sail nearer the wind," because the guardians of the law are always at hand to protect persons and property, and it is of minor importance whether or not a spinning jenny or other manufacturing machine stands still for a time; in the country, on the contrary, not only do the amenities of life depend on mutual and reciprocal co-operation and protection, but to stop farming operations for real, far less imaginary, grievances, would simply be to ruin the still most important industry in the country. The only sure way for labourers to obtain and retain the whip-hand of the farmers is to become "profitable servants;" for whatever positions that many at the present moment take by storm, as it were, through the aid of unions or strikes, they will never be able permanently to retain, except by merit; and the sooner their trusted advisers teach them this, the better it will ultimately be for themselves. Farmers cannot, like many other classes, adapt themselves to circumstances in a day, because they have leases to fulfil and rotations to go through; but they will do so in time, and if, as is not improbable, those who are now leaving their service for town occupations on account of nominally higher wages, may have, by-and-by, when the present cycle

of manufacturing prosperity has run out, to return to their old homes, they may find the doors locked, the steam-engine and other labour-saving machines everywhere at work, much tillage land laid down to grass, and their former occupations gone.

There cannot be a doubt that the farmers for the last two or three years have lost considerable sums of money, at least those of them who have been dependent on arable land; and not so much has been made out of cattle as the high price of meat implies, store stock having been difficult and dear to purchase. Farm-servants, therefore, when they insist so peremptorily upon higher wages, have not all shewn that consideration of economical conditions which they ought to have done. We quite agree with Mr Scott that "the only sure way for labourers to obtain 'the whip-hand' of the farmers is to become profitable servants." (We do not care much for this phrase, as we think the "whip-hand" should not be lifted by either master or servant.) There are many labourers who are by no means equal to their work. The wages appear small, but they are often equivalent to the labour supplied. A great deal of better, and more profitable work would be done for the farmer



were piece-work adopted more generally than it is. But before piece-work can be made universal we must have better cottages for those who are engaged on farms, and it must be so arranged that they shall not be turned out at a day's or a week's warning. Six months is quite short enough notice for a man to quit his habitation. The cottages in the neighbourhood of Chipping Norton would appear, from a letter in the *Times* signed by C. Holloway, chairman of the Oxford district of the Union, to be of a very disgraceful character; so bad, indeed, that it cannot be expected that good men will live in them. He says (our readers will, no doubt, take the statement *cum grano*):—

Imagine a narrow place, like a coal cellar, down which you go two or three steps, no flooring except broken stones, no ceiling, no grate, rough walls, a bare ladder leading to the one narrow bedroom, about 6 feet wide, containing two bedsteads, for a man, his wife, and three young children, the whole place as wretchedly bad and miserable as imagination can conceive, and only divided by a rough wooden partition not reaching to the roof, but over which you may look into the bedroom of the next adjoining house, equally wretched and miserable, and with the additional evil that the only way to the bedroom of a third house is through the bedroom of No. 2 house, and that in No. 2 live a man, his wife, and six children, and, till recently, the third house (one room down, one up) was occupied by a man, his wife, and also six children, whose only way to bed was through the bedroom of No. 2, as No. 3 had no staircase or ladder or any other way of access to the bedroom.

Another house we visited contained one room on the ground floor and one bedroom upstairs, in which the father, mother, one son of 10 years old, three daughters, aged respectively 3, 17, and 22 years, all sleep, with no other accommodation.

It is very difficult to eliminate anything satisfactory out of the chaos of the contradictory statements about the Chipping Norton case. It is only just to Mr Hambridge to give his reply to the charges which have been made against him by a member of the Union at a public meeting. He remarks:—

Mr Banbury stated that:—1. "The farmer named Hambridge had been a bitter opponent of the Union from the commencement. At the first meeting held in the district he went and took down the names of the men who joined the Union, and threatened them

with loss of work and dismissal from the cottages they occupied, of which he was the trustee."

Answer.—Until the first meeting of the delegates on our village green, I in no way interested myself in the Labourers' Union. Wishing to know the names of the labourers favourable to Union, I went to the green and put some names down, but I emphatically deny that either then or at any subsequent period I have threatened a labourer with dismissal either from work or from a cottage. I am no trustee or feoffee of the village charity, nor can I in any way interfere with the letting of the property.

2. "He tried his best to destroy the Union, but was obliged to take back the men he had discharged."

Answer.—I repudiate the assertion of attempting to destroy the Union, or in any way interfering with it or its members either in word or deed. During my seven years' residence in the parish I never dismissed a labourer, nor did any of my labourers leave my service (until Union principles were about); consequently, there could be no taking back.

3. "He had been paying them 9s. a week, and when he took them back he gave them 10s.; and within the last few months he had given them 12s."

Answer.—In this and the surrounding villages 9s. per week for day labourers has ceased upwards of two years; 10s. were subsequently given; and when these enemies of social order presented themselves in this peaceful village I had been and was giving my day men 12s. a week, two bushels of malt, and one and a half pound of hops, for one month's haymaking. This was twelve months since, and so it has continued without variation to the present time.

4. "In the case they were considering the men sent in a respectful request for an increase of wages, and at the end of the week, instead of giving them what they asked, he locked them out."

Answer.—I settled with my labourers on our usual good and friendly terms on Saturdays, after which they attended one of their meetings. On Monday morning, when my labourers came, they informed me they must all have an advance of 2s., or they should leave. In a friendly manner I advised them to consider what course would conduce most to their future well-being. I raised the wages of all my efficient labourers, but I told those who from age or infirmity could not do equal to the others that their wages must for the present remain at 12s. per week, but that there was and would be plenty of piece work. They were unanimous, and decided that unless all had the rise not one should continue to work for me. Discussion was useless, and I told them I could not yield to dictation. They all left in the middle of a backward barley sowing. These are facts, consequently I did not lock out my agricultural labourers, but offered them their own terms (the efficient labourers). Mutual obligations and relative duties were forgotten, and I was left at a critical period of agricultural opera-



tions with twelve working horses, four working oxen, a superior flock of 500 sheep at turnips, milking cows, bullocks, and a young stock, with only a head shepherd and a youth, both yearly servants.

5. "That man had been in the habit of giving men 2s. per day for working, in the harvest time, until eleven o'clock at night."

Answer.—My labourers were never in the harvest field at eleven o'clock at night. I always have a good staff, plenty of horse-strength, and personally direct the whole machinery to the last. It is a very rare occurrence for me to be late; when it happens, I square it with interest and perfect satisfaction to my workpeople, if there is any meaning in a cheerful, contented countenance, and the hearty "Good night, master, thank you kindly."

6. "When he locked out the men, one of his yearly servants left work, feeling so much annoyed at his conduct. That man was summoned before the magistrates, and made to pay £4, 12s. 6d. for leaving work." (Shame.)

Answer.—My carter was a weekly not a yearly servant. From Michaelmas I had given him 14s. per week; and when I was asked on Monday morning to give 2s. additional to all, I repeatedly offered him 16s. a week, which he refused unless all had the advance. He left with my other labourers. His conduct is the more reprehensible from the circumstance that all my agricultural horses were on their way into the fields to drill barley. He brought them back, put them in the

stables, shut the doors, and went away. The arm of the law alone can deal with such conduct, provoked by Union principles. On public as well as on private grounds, it was imperative to appeal to the law; the charge was fully proved; he was fined; the Union delegate was there and paid the fine; and thus is fostered the vexatious conduct of the agricultural labourers by a class of men who live by the dissemination of principles that sap the foundation of social order, peace, and goodwill among men.

Mr Hambridge goes on further to state that the men were not locked out, that they left, because that he was not justified in paying wages to all of his men which he was prepared to grant to some of them.

Mr Holloway writes to the *Times* denying intimidation and molestation on the part of the women who were so harshly imprisoned, and he ends a letter to the *Times* with rather a smart hit about the union of farmers. It is a great pity all the same, however, that men and masters in agricultural districts were not allowed to arrange their affairs without the intermeddling of persons who have no connexion with and know nothing whatever about agriculture.

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## MR DIXON ON THE LABOURERS' UNION.

THE speech of the hon. member for Birmingham at the Conference of the National Agricultural Union at Leamington, was a very plausible one. Mr Dixon was as usual very cautious in the wording of his speech. He deprecated, as Mr Jenkins and others who have associated themselves with the League have done, the rhodomontade of the *Union Chronicle*, the exponent of the labourers' views, or which at all events is the accepted medium of communication between the rural labourer and what we may call "the outer world." This source of information, we are afraid, is not inspired by men "who have whistled at the plough." It is written evidently by persons whose sole

idea is to overturn at once the institutions of this country—by persons with much less discretion than Mr Bradlaugh, who, demonstrative Republican as he is, declared in the capital of Spain the other day (where he went to represent "the people of England!") "that if it were even in *his* power to establish by a decree a Republic in England to-morrow, he would not establish it, as he did not consider that the country was yet ripe for it; nor did he think that true Republicanism consisted in violently knocking down effete Monarchies, but in each individual discharging his duty thoroughly as a citizen, and under that influence the Monarchy would of itself become useless and crumble away."



No such admirable forbearance as that Mr Bradlaugh (under circumstances with which he might be prematurely surrounded) has generously undertaken in Madrid to exhibit in England for twenty years, is guaranteed by the penmen of the *Union Chronicle*. If the demands of the labourers are not complied with unconditionally, they broadly hint at blazing stackyards, and at farmers weeping over the ashes of their homesteads. The rick-burner of this day, however, will not be as the one which Leech more than a quarter of a century ago pictured—a poor starving wretch goaded to madness by his poverty, he will be a well fed man (citizen perhaps we should say), supported by the funds of the Union. The ruined farmer will certainly not be of that type which the same artist represented as grumbling, after the fashion of the historical Jew, because his crops were so large that he would have to pull down his barns and build greater. For several years the farmers have had hard work to make both ends meet. In truth both crops and stock have failed. The yield of grain has been deficient—the fatality among cattle and sheep unwontedly large. The candle, it may be said, has been burning at both ends, and now the labourers have, in anything but a courteous way, cut a large slice out of the middle, though their deputed agents threaten to seize more.

As we have said, Mr Dixon repudiated the views expressed by the *Union Chronicle*. He counselled moderation and forbearance. The work, he declared, should be undertaken with the spirit which animated the old Puritans. "It was a semi-religious work, and should be conducted in the true spirit of religious men." These are noble words, but the paper which instructs the men seems more inclined to instil into them a Satanic than a God-like religion. [Further, Mr Dixon informed his listeners that they would "have to encounter enormous difficulties." They would have to trench upon the "privileges, and prejudices, and *rights*" of other classes. The word we have italicized is surely an un-

fortunate one. We cannot realize that any class, seeking to obtain their own rights, have justification for trampling upon the rights of others. But Mr Dixon and the National Agricultural Labourers' Union, we presume, know better what is due to the common weal.

Mr Dixon gave his surety that we need not fear agrarian anarchy, midnight surprises, nor beacon fires, nor anything like civil war. The force of the movement did not lie in the direction indicated by the *Union Chronicle*, but in the eloquent exposition that the agricultural labourers had given all over the country of their grievances, and in the power which all men had when they were oppressed, by their circumstances, perhaps, more than by the enmity of individuals, and the power they possessed of uniting together to remedy existing evils.

Will Mr Dixon's moderate sentiments subordinate, in minds not much accustomed to think and weigh matters calmly, the inflammatory appeals in the paper which boasts of being the labourers' "guide, philosopher, and friend?" We are very much afraid that they will not.

The speech of the Member for Birmingham, moderate in its tone though it be, is, as the *Pall Mall Gazette* says, altogether misleading. The want of the habit of self-reliance has been one sadly detrimental to the interests of the rural population. They have rudely broken through a patronage which was well-intentioned, if it were not altogether and in all cases, wise; one whose yoke was comparatively easy, and they have placed themselves under a yoke of steel. They have emancipated themselves from a mild despotism, to bow their necks under one which rules with a rod of iron. They have already sacrificed, by entreating outside aid, the little self-reliance which they at first, under the leadership of Mr Arch, evinced. We cordially concur with the following remarks from the *Pall Mall Gazette*:—"If the Union learns to look for support to outside



aid instead of to its own members, the formation of this habit [that of self-reliance] will be as far off as ever. If the agricultural labourers are to obtain good wages, it must be by being in a position to command them,

and that position must be gained by their own prudence and their own energy, not by speculations on what their employers would do, if human nature were something else than what it is."

## THE LABOURERS' MASS MEETING IN SOMERSETSHIRE.

THE placard which announced the holding of a great mass meeting of agricultural labourers at the Frying Pan, Ham Hill, Somersetshire, was a unique production of its kind. We had intended framing it, but unfortunately we have mislaid it. One of its injunctions to the labourers was that "every one was to walk four abreast," a feat which, if the British soldiery could perform it, would be gratifying to ratepayers. Its accomplishment would at once relieve our overburdened community of three-fourths of the large sum which we now pay for our army. The mass meeting so summoned has been held, and from the description of the *Dorset County Chronicle*, it appears to have been a farce. Our contemporary says the mass of members of the Union did not number above 500, and the procession about 150, headed by a brass band attired in "red serge jackets," and in the front rank was a blue flag bearing the initials "N. A. L. U." Our contemporary goes on:—

Arch and Potter and Mitchell and Co. did not walk; they exhibited themselves in a carriage; and there was also a waggon-load of women. Altogether the "procession," as it straggled through the town, looked rather poor, and not at all imposing. The men each wore a piece of blue ribbon, and most of them carried in their hats large cards, printed in blue letters as follows:—"The franchise for the farm labourers of Somerset. 15s. a week all the year round, and no surrender." That was understood to be the watchword of the day. Arrived at Stoke Cross, which was the appointed rendezvous, the perspiring walkers were joined by their brethren from the neighbourhood of Langport, Matlock, and South Petherton, who came in to the music of the Curry Rivel band. The village of Stoke was in a grand com-

motion. The inns were choke-full, and horses and traps of all descriptions were being put up anywhere. Visitors on pleasure bent flocked into the place from Yeovil, Martock, Langport, Crewkerne, and the neighbourhood; and the pilgrimage up the hill was a sight to see. Trudging along in the hot sunshine was every variety of the labouring classes, and in many cases whole families, from the old grandfather to the youngest member. Indeed the number of babies in arms was astonishing. The Masons' Arms was a general "half-way-house" in the journey over the hill—to judge by the crowds of thirsty souls which besieged it—and near by was the only visible effort at decoration, consisting of a frail and limp arch of green boughs, looking anything but evergreen.

To give a lasting impression about the demonstration, songs were composed in its honour, from one of which we quote two or three verses:—

The farmers are grumbling, and swear its' not right,  
They are awful uneasy to see such a sight;  
To go up to Ham Hill they've got no desire,  
They'd be "out of the frying-pan into the fire."

At one time of day, it has been frequently shewn,  
You dare not to say that your soul is your own;  
But, thanks to the Union, the labourer can say  
He's as good as his master now, any fine day.

From Langport and Martock they'll meet at Stoke's  
Cross,

For their fat-bellied masters they don't care a toss;  
From Odcombe and Preston, and Montacute, too,  
They've come with flags flying and ribbons of blue.

Probably the leaders at the mass meeting had nothing to do with the composition of this doggrel, but whoever had cannot be called friends of the labourers. No good can possibly come out of attempts of this kind to disparage the farmers and bring them into ridicule. They will have a tendency to



widen the breach now unfortunately existing, and the labourers will find out to their sorrow some day that it would have been quite as well for them if they had not said nor sung that for their "fat-bellied masters they don't care a toss," from the many letters published on the subject, that the bright prospects held forth to emigrants by "the agitators" at an early stage of the Union have turned out of the blackest description—that in fields where health and prosperity and rapidly accumulating wealth were to be obtained with the smallest expenditure of labour, there is nothing but poverty, pestilence, and death. The men who were deluded by the fine promises are inwardly on a foreign shore, from which they cannot get away, cursing deeply those who decoyed them from their homes. How they long now to have a taste of that fare which, goaded on by scheming men from cities, they were persuaded to despise. Turning again to the *Dorset Chronicle* for a glance at the character of the meeting we find the following:—"Amongst several flags and banners we observed one bearing the mystic device of 'C.C.C.B.' We had a curiosity to know the meaning of this, and we said to the standard bearer, who was excitedly marching 'round the course,' 'What is the meaning of C.C.C.B.?' 'Britons never shall be slaves!' he replied. 'But how do you make that out?' Answer—'Why B. goes for Britons and C. for slaves: 'Britons never shall be slaves:.' 'I'm a Briton, and I'm open not to be a slave.' After this lucid explana-

tion, of course, there was nothing more to be said; and our friend the Briton eagerly signified his wish to drink." Our contemporary, we fear, is a little given to caricaturing the Agricultural Labourers' Union; but making some allowance for this, we find little in the speeches made on this memorable occasion calculated to allay the bitterness which exists between the labourers and their employers, and no grasp whatever of the labour question. "Fifteen shillings a week and no surrender" is no argument at all. Fifteen shillings certainly does not seem an exorbitant sum, quite the reverse *per se*, but fifteen shillings under certain circumstances, and demanded under certain conditions, is quite another matter. We are not advocates for low wages, on the contrary, we should like to see the agricultural labourer get more than was asked at the mass meeting if he were worth the advance. But there is no denying that in many cases the labour performed by the workman is not worth that sum, and neither the means of the farmer nor justice to himself will permit of him submitting to the rude and peremptory demands of the unionists.

The speeches of the delegates from London were mere tirades of abuse, and that of Arch was a simple glorification of himself. Never were such pæans before sung by a man about his own prowess. His speech was Arch from beginning to end, and the estimate of his own achievements very much higher than any but his ignorant adorers will be inclined to accept.



## CATTLE CONTROL.

THERE is an old proverb to the effect that "What is one man's meat is another's poison." The Home Cattle Defence Association maintains that the scarcity of meat is almost entirely due to the importation of foreign cattle. Our Tees-waters, our polled Anguses, Galloways, and Ayrshires, fall victims to the *virus* which is brought to us across the seas. The maladies which decimate our stock, it is alleged on the one hand, are not generated in our own country—that if importation were stopped altogether we should have beef and mutton at a price much lower than at present. Therefore, the desire is, that the Privy Council should stop the traffic in live meat from the Continent altogether.

On the other hand we have statements, which cannot well be controverted, that England and Scotland receive more contaminated animals from Ireland than they do from foreign countries. There is a licence extended to Irish cattle which exceeds that given to Continental ones. The Irish cattle bring in disease, it is asserted, and so tend to reduce our herds.

There is more truth in the latter statement than the Home Cattle Defence Association are inclined to admit.

We think there is a great amount of recklessness to be laid at our own doors for the scarcity of meat. Were farmers at home to be half as keen in picking the mote out of their own eye as the beam out of their neighbours, they would have much less to complain of with reference to foot-and-mouth disease. It is encouraged by the laxity of the Orders and the selfishness of owners of stock.

The foreign cattle that reach us now are of much better quality than they were wont to be. The Spanish animals are growing in excellence from year to year. Their feeders have taken a lesson from the best of our own,

and with better pastures and more congenial climate they are sending stock to British markets that would be a credit to any country. Not one of them, we believe, has had the slightest trace of disease; neither have the less well-fed ones from Holland and Gothenburg. The stoppage of them, therefore, would still further enhance the price of meat.

There is a market for condemned cattle at Deptford—a market where *suspected* stock are consigned. After satisfactory inspection there is no reason why foreign animals should not be as free to enter the markets as our own cattle.

Satisfactory inspection! That is where the whole matter of disease in stock and dearth of meat rests. We have *not* satisfactory inspection. Any inspection that exists is extremely unsatisfactory, not so much owing to the inefficiency of veterinarians as the pusillanimous character of the Orders given to the Local Authorities, combined with the pusillanimity which on many occasions they have displayed in carrying them into operation.

Several years ago an Act of Parliament was passed making it compulsory upon railway companies to disinfect their trucks; and steam-boat companies were also liable to be penalized if they did not make clean and wholesome the holds and decks of their vessels. How many of the companies have complied with the enactment, and how many have been fined for non-compliance? Very few, so far as we can gather from the evidence before the Contagious Diseases Committee.

Professor Ferguson, of Dublin, in his examination before the Committee, said (and his remarks bear out all that we have hitherto expressed about the laxity of the administration of the law, and the necessity for inflicting heavy penalties):—

He believed the only way to prevent the moving



of cattle whilst in a diseased state would be to inflict a heavy fine, say £20, and when more than four animals, an additional penalty of £5 for each extra. Under the existing regulations there was a penalty, but it was never enforced by the magistrates; indeed, in the large grazing districts they merely inflicted a nominal fine. He knew a case in which magistrates not only limited the fine to a penny, but expressed sympathy for the culprit, and thought he had been hardly dealt by. Neglect of the disinfecting of railway trucks had, doubtless, been a cause of spreading infection; but the railway companies had so remonstrated against it on account of the enormous numbers required, that it had been impossible to carry it out. With regard to the complaints made about infected animals at the large fairs, it was impossible to examine the immense numbers that were sent, and were the inspectors ever so numerous contagion could not be prevented. There ought to be a sufficient staff of veterinary surgeons in all the different parts of the country; at present in many instances where the police did report disease as existing, the accuracy of their judgment was denied as to its nature.

We quite agree with Dr Ferguson that there is a great lack of qualified veterinary

surgeons throughout the country. Many capable men have left the profession because they received little encouragement from farmers—none of a worthy kind from Government—and it did not quite suit them to starve. Science must inevitably succumb to supper. “No song, no supper,” is an old nursery rhyme. In the case of veterinarians it is sad to think that science, which we shall take for the nonce to be equivalent with song, has to seek for its supper in other fields.

We do not desire to see meat getting dearer, therefore we do not wish to see the prohibition of foreign cattle further extended than it is at present. Neither should we like, as the Glasgow butchers and those in other large manufacturing towns have demonstrated, the further extension of privileges granted to the receipt of foreign cattle, except under an inspection of a much more efficacious character than that we are now in possession of.

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### *IMMORALITY IN THE RURAL DISTRICTS OF SCOTLAND.*

**I**T must give every one on this side of the Border pain to read the latest statistics of the Registrar-General of Scotland. “Caledonia stern and wild,” is supposed to be, and no doubt it is, one of the most religious, or at all events one of the most professedly religious countries in Europe, and there can be no question whatever that the peasantry are the best instructed in the world. Yet we find from these sad figures of the Registrar that with all their religion and all their education the rural population is dreadfully prone to one of the vices denounced alike by Scripture and Society. The per-centage of illegitimacy throughout the whole of Scotland, as exhibited by the damning figures of this Return, is 9.3, which shews that in about every eleven children born there is one whose parentage is, if not dubious, at least not legal. This is bad enough, but much worse remains behind. These statistics shew the proportion

of vice all over the country, taking in towns and villages together. When we come into these pleasant retreats which, according to the amiable and sometimes melancholy Cowper, “God made,” while the same poet assured us that towns were the device of man, we discover that fornication is much more rife. We shall begin with the worst county first. Our readers will probably be shocked to find that in the small county of Kinross, so celebrated for its splendid trouting lake, Loch Leven, the per-centage of illegitimacy amounted to the appalling height of 21.7 per cent. To thoroughly realize the enormity of this vice we shall consider ourselves walking through the picturesque lanes of this county, and meeting on our way fourteen persons. It is safe to set down that three out of these have been born out of the bonds of wedlock. A friend who was once travelling throughout Aberdeenshire many years ago remarked to



the coachman that the products of illicit love were unwontedly large—(we shall see shortly that virtue is not a flourishing plant there yet)—and anxiously inquired the cause. “Oh,” says the Aberdonian, “it’s jist a’ on account o’ you fishers,” a very easy, but we are afraid not quite satisfactory, solution of the disgraceful problem. We hope this story has no application to Kinross.

The cathedral county of Elgin is the one that stands next in excessive iniquity of this nature. Here the per-centage of illegitimacy is 20.1 per cent., which being interpreted means that every fifth person that we meet in our wanderings is a bastard. Next comes that picturesque county Wigtown, in which Mr Caird set the example of high farming. From the banks of Baldoon came the theories and practice which have contributed to the improvement of agriculture, we may say, all over the world. There we find an illegitimacy of 19.6 per cent., which in round numbers, with reference to the inhabitants you meet in your walks, is about the same as Elgin. Profiting, or rather, we should say, *demoralized*, by the example of her sister county, Kirkcudbright, the scene of one of Scott’s best novels and a county famous for its cheese-making, shews us a per-centage of 18.3 illegitimate children. Dumfriesshire, so noted for its pork proclivities, although not the next most heinous sinner, we shall note here as the two preceding counties march with it, gives 13.8 of those persons described by the Scotch as having been born on “the wrang side o’ the blankit.” Going back to the north, shewing that climate has little influence in making people moral, we find that Banffshire has a per-centage of 15 per cent. of illegitimate children, or, in other words, that about every seventh person has no claim to the property belonging to the father. Aberdeen is not so glaringly wicked in this respect as we have seen it, the per-centage in the first quarter of the year reaching only 13.6, seven out of eight persons being, therefore, lawfully born. Kincardine shews a per-centage of 12.7; Roxburgh, in the south,

12.4. Reverting to the north again, we have 11.5 in Caithness; 11 in Inverness; and 10.7 per cent. of illegitimate children in Forfar. We do not care to run this discreditable gamut any further, all counties in Scotland being vicious in a greater or less degree.

Many theories have been propounded to account for this particular kind of immorality among a church-going and a well-read people, and a people who cannot be accused of drunkenness. However much whiskey-drinking is the failing of Scotchmen in towns, it is not a habit among the ploughmen of Scotland. They are, as a rule, an abstemious class of men, differing much in that respect from their fellows on the English side of the Tweed. Except at hiring fairs, which occur only every half year, they seldom indulge; so that drink, the cause of so much iniquity, may be left out of the question in their case.

Clergymen of various denominations have endeavoured to shew that this criminal correspondence resulted from the fact that the actors in it had not accepted the particular doctrines belonging to their special sects. We have seen no ground to believe that one form of worship has been more provocative of the sin than another. Again, it has been urged that the vice was wholly due to the obstacles thrown in the way of matrimony; our own experience, as long ago recorded in these columns, is that most ploughmen marry too young—before they have made any proper or indeed any kind of provision for their wives. Then we have been told that the counties where most incontinency prevailed, were those in which the number of marriages taking place was smallest; we have shewn from statistics, that where the fewest marital unions were, there, likewise, was the least per-centage of illegitimacy. Some persons insisted that the vice arose from what they called the “old patriarchal system” having fallen into desuetude, that the servants did not now live under the master’s roof and under his next to parental eye, as they were wont to do in “the good old times.” We have proved over and over again irrefragably, that



in districts where this fine old custom still prevails, that there the largest amount of immorality is chronicled. Then the bothy where several young men are housed together was denounced as the very hot-bed of the vice which blots the fair escutcheon of Scotland. That theory too is scattered to the winds by the same inexorable figures of the Registrar. The counties where bothies chiefly prevail, are less amenable to the finger of scorn than the others.

What, then, is the reason of the prevalence of this vice? We confess ourselves unable to answer decidedly, but we would indicate that there are too few cottages of a comfortable character upon the farms, and that there is also an absence of good bothies. Many of the latter class of buildings are utterly disgraceful, and young men not being able to stay in them are induced to stray abroad. We

should recommend a class of bothies such as are to be seen on Lord Kinnaird's and Lord Southesk's estates, where each man has a quiet little room to himself, to which he can retire for study when he is tired of the general living room. More cottages and better bothies would do much, we think, to check the progress of this kind of immorality. One thing which tends also to produce illegitimacy in Scotland, is the state of the law which makes, after the marriage of the parents, children legitimate who were born previous to wedlock. The Poor Law also by its assistance contributes to swell the roll of those whose parentage no moral law has sanctioned. Whatever the cause or causes, it behoves the clergymen of Scotland to bestir themselves in this matter more than they have done. A pure people is far better than a puritanical one.

### FOREIGN AGRICULTURAL TRADE.

A BLUE-BOOK has just been published, giving a very interesting account furnished by Her Majesty's Consuls abroad upon British trade with foreign countries. The reports, of course, have special reference to the purely commercial relations between this country and other lands, but they also contain much that is worthy of note upon our agricultural imports and exports. The first country with which we have any agricultural dealings of importance is Egypt, and there, although the consul who gives the information does not make mention of any palpable improvements in agriculture, the immense increase in the exports of cereals to England plainly indicates that much progress has been made of late years. The steam plough has done good work on the banks of the Nile. In 1845 the quantity of wheat, &c., which we received from the country where the Pharaohs were wont to be omnipotent, was 121,190 qr.; in 1868 we were indebted to the same country

for 1,526,850 qr. Since the latter year there has been a decline. In 1871, the last year of the return, the quantity imported was 780,000 qr., at a cost of £1,240,000. The total value of the imports from Egypt from 1866 to 1871 was £4,670,280.

Under the head of France, we have some information about Algeria. The principal Algerian elements of exchange with Europe consist of, we are told, cereals, linseed, vegetables, fibres, wool, cattle, hides, and minerals. The want of industrial energy on the part of the population is amply attested by the fact that the average yield per acre of the whole country is only about 8 or 9 bushels per acre. "The reason," says the consul, "is this, that the land has never been deeply ploughed; it is not manured, and little or no care is taken to free it from the noxious weeds which choke the corn and exhaust the soil." The country certainly does not hold out very inviting prospects to European capital and enterprise,



seeing that so much periodical damage is occasioned by those most destructive of insects—locusts. The return informs us that a great source of the wealth of the colony is its sheep, which are bred on the high plateau, where agriculture is an absolute impossibility. Take the following paragraph regarding the price of these animals:—"For some time after the conquest, 2s. or 3s. was considered a fair price for a sheep; even five or six years ago, one could be purchased at the market of Bou Farik, close to Algiers, for from 9s. to 11s.; now a similar beast fetches from 16s. to 20s.; and when sent to Paris by rapid steam transport, it realizes from 32s. to 42s.; and in summer, more than 20,000 sheep are thus sent to France every month." The most important commodity exported from Algeria into England seems to be barley, for which we paid £14,751 in the year 1861. In 1860 we paid Algerian flockmasters and graziers £19,915 for cattle and sheep, and no doubt the number received has been considerably augmented during more recent years. From France itself we receive considerable quantities of eggs, poultry, and butter. Ten years ago the price of the butter we imported from France—or at any rate that shipped at St Malo—only amounted to £9,397; from November 1871 to October 1872, the total was raised to £1,029,962. Eggs and poultry shew a great increase within the same periods, but cattle, on the other hand, have diminished, especially in the case of bullocks. There is a noticeable augmentation in the price we paid France for horses within the past ten years. In 1849 and the four following years the average value of equine flesh imported from St Malo was but

£267; from November 1871 to October in the following year, the value had risen to £17,840.

With regard to Germany, the consul at Bremen tenders statistics of the agricultural products which come from that district. We are informed that the exportation of cattle, sheep, &c., to England from Bremen is expensive, and has of late years been gradually increasing. In the year 1871, the numbers exported from Bremerhaven and Geestemunde were: cattle, 13,015; sheep, 205,429; pigs, 200; and calves, 40. Although the regulations prescribing the slaughter of all cattle, &c., brought to British ports from Germany and certain other countries, has been much complained of by the German cattle-dealers as prejudicial to their interests, it does not appear that the number of cattle exported to Great Britain has in any way diminished. We receive also large quantities of wool, hops, and clover-seed from Bremen and other parts of Germany.

In 1870-71 we received 352,642 cwt. of wheat from Königsberg, 13,505 cwt. of rye, 294,959 cwt. of barley, and 164,533 cwt. of beans, besides large quantities of peas, beans, tares, seed, &c. From Stettin we import some grain, but hardly to any appreciable extent.

The total value of exportations in 1871 from Belgium to England amounted to £630,000, consisting of butter, eggs, rabbits, poultry, sheep, and flax.

The other countries of importance included in the first volume of the Blue-Book are Greece and Italy. We shall return to the subject again.



## The Farm.

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### IMPORT AND EXPORT OF AGRICULTURAL COMMODITIES.

THE Board of Trade Returns for the month and five months which have been issued shew an increase on the numbers of cattle imported both in the shorter and longer period. In the past month we had 15,891 oxen and bulls, as against 8708 in the corresponding month of the previous year. In the five months for which the statistics are made up we received 41,950; up to the end of May 1872 our receipts were only 28,199. Cows were shorter in supply than in the former year, the number in the five months being only 9867 to contrast with 11,925. In the month a much larger number of calves were imported than in the May of the previous year. We cannot say that we appreciate this, as the slaughter of calves tends to the lessening of meat. Were the animals allowed to grow to maturity the price of beef might be less than it is at present. The total number up to the end of last month was 12,491; in the corresponding period of last year the imports were 11,345. With a much larger increase of sheep and lambs in the month, a decrease is noticeable in the five, to the extent of nearly 15,000, the exact numbers being 322,542 in the portion of this year which has gone by, and in 1872 they amounted to 337,435. In the month of May last year our receipts of pigs had fallen to a couple of hundred; last month they had risen to 4648. In the five months we had 8690, to contrast with 2018. This supply of live porcine meat by no means decreased the importations of bacon. These were larger last month than they have ever been in the corresponding term of any year since the Board of Trade Returns were published. The bacon received from abroad during the

month, was 414,325 cwt., in the May of last year it fell short of 150,000 cwt., and in 1871 the imports did not amount to 50,000. The total quantity of bacon sent to our shores in the five months of this year which have expired, was 1,623,056 cwt.

For the articles we have enumerated we paid altogether £4,957,525; last year, in the same term, we only disbursed £3,614,472 for similar commodities. We pointed out last month that prices of cattle were much higher than they were last year, and that the same held good with respect to sheep. The tendency is still upwards, notwithstanding that the imports are larger. For beef, fresh or slightly salted, £306,844 was paid, in round numbers, £50,000 more than last year in the like time. Hams cost us £297,476. Meat "unenumerated," including salted or fresh or preserved, £341,797. The preserved meat has taken a stride in the month, but in the longer period there is a considerable falling off. There is no abatement in the price from that we noticed last month. There was a decrease in the importations of pork, whether salted or fresh, in the five months, although the month shewed an increase. We were debtors for this article to foreign creditors at the end of May, £328,836. Game, including rabbits, cost £99,244. Our total expenditure for animal food was £6,531,722.

Our dairy produce cost us upwards of three millions and a quarter sterling. We paid for butter £2,669,850, and for cheese, £713,880. Both sums are greater than we disbursed in the corresponding period of 1872, but in neither case so large as we expended in 1871.



The importation of eggs last month was considerably in excess of the number brought into this country from abroad in the same month last year. The number received in the month amounted to no less than 755,187 "great hundreds," while the number in May 1872 did not nearly reach that total—569,606 being the figures. From January up to the end of May we have been indebted to the foreign hen-wife for 2,635,637 "great hundreds" of these favourite household articles of food at an estimated cost to this country of £1,131,637. The increase this year upon the like term of last amounts in quantities to 338,178 "great hundreds," and in value to £231,924.

If we put together our foreign receipts of live stock, dead meat, and dairy produce, we note that we have expended a sum of money amounting to £10,047,086.

Coming to corn we find our wheat deliveries up to the end of May greatly in excess of those in the first five months of the previous year, viz., 15,199,993 cwt., the cost being upwards of £2,000,000 more, in all £9,803,373, as against £7,775,879. Barley and oats came in less quantity, so also wheat meal and flour.

The following tables shew the precise quantities, the countries from whence the wheat was imported, and the values—

Wheat.	QUANTITIES.	
	Five Months ended May 31, 1872. Cwt.	Five Months ended May 31, 1873. Cwt.
Russia.....	7,094,137	4,784,431
Denmark .....	60,753	232,848
Germany .....	1,236,152	1,075,117
France .....	82,794	1,128,607
Austrian Territories ...	3,062	15,009
Turkey, Wallachia, } and Moldavia .....	376,385	168,253
Egypt.....	935,921	564,925
United States .....	2,441,205	5,585,189
Chili .....	477,004	555,706
British North America	80,209	77,874
Other Countries .....	289,772	1,012,034
Total.....	13,077,394	15,199,993

VALUE.		
Russia .....	£4,069,904	£2,983,520
Denmark .....	39,175	156,653
Germany .....	828,487	752,020
France .....	48,202	719,637
Austrian Territories ...	2,094	10,239
Turkey, Wallachia, } and Moldavia .....	199,237	98,935
Egypt.....	472,593	299,805
United States .....	1,556,311	3,707,403
Chili .....	317,598	344,285
British North America	51,155	53,313
Other Countries .....	190,123	677,563
Total .....	£7,775,879	£9,803,373

QUANTITIES.		
	Five Months ended May 31, 1872. Cwt.	Five Months ended May 31, 1873. Cwt.
Barley.....	5,994,277	5,174,883
Oats .....	4,334,712	4,080,154
Peas .....	235,809	506,648
Beans .....	1,355,759	1,173,965
Indian Corn or } Maize.....	6,103,386	6,139,437

VALUE.		
Barley.....	£2,352,514	£2,227,220
Oats .....	1,569,531	1,566,756
Peas .....	101,594	218,606
Beans .....	539,650	483,543
Indian Corn or } Maize.....	2,246,304	2,077,574

QUANTITIES.		
	Five Months ended May 31, 1872. Cwt.	Five Months ended May 31, 1873. Cwt.
Wheat Meal, and Flour.		
Germany .....	403,550	366,535
France .....	157,107	1,404,084
United States .....	190,909	346,790
British North America	1,326	22,106
Other Countries .....	351,477	745,723
Total .....	1,113,871	2,921,381

VALUE.		
Germany .....	£372,019	£360,089
France.....	142,705	1,333,728
United States .....	145,555	308,997
British North America	1,159	19,890
Other Countries .....	360,979	781,866
Total .....	£1,012,915	£2,768,427

Potatoes continue to arrive from the continent in very large quantities, which, perhaps accounts for the wretched tubers that



are now so common at restaurants and hotels. In the month we imported about five times as many as we did in the May of 1872, and in the five months the imports exceeded those of the previous year more than ten times, the total quantity being 5,611,012 cwt. as against 517,426. The cost of potatoes this year up to the end of May was £1,546,426; in the corresponding period of last year it was only £145,709. The unfortunate thing is, that on account of the regrettable failure of the crop last year there was not much good seed left to plant—that farmers having their fingers burnt last year did not feel inclined to put them so far into the fire this, and that the season for planting has been backward and unpropitious. Therefore we may expect to have to depend upon the foreigner for a considerable supply next year. We may look forward also to paying a higher price, unless our own crops prove more than usually abundant and free from disease.

Turning now to those substances by the use of which crops are grown, we find that our imports of bones were much smaller in quantity in the month and five months, 22,318 tons representing our receipts this year as against 39,933 tons, at a cost of £144,899, whereas in the five months of the previous year we had to disburse £257,823. Guano is being more favoured by buyers in this country this year than it was last, probably owing to the fact that there have been more facilities for its importation, and that its quality is somewhat better on the whole than it was. We imported in the five months for which the returns are made up, 65,547 tons, more than double the quantity we received in 1872. The cost was £742,000. The price this year was a little over £11, 9s. per ton, last year it amounted only to £9, 9s. The quantities of nitrate of soda imported were greater both in the month and five months of the current year than they were in 1872. The total quantity received up to the end of May was 863,283 cwt., at a cost of £675,688; last year 763,907 cwt.—cost £611,869.

Our supply of feeding stuffs was more limited this year than last. Of oilseed cakes our receipts up to the conclusion of May were 57,168 tons, to contrast with 62,151 tons!—the value, £531,206, as against £572,708. Rape also we got in smaller quantities. In clover and grass there was a very large increase in the month, and the longer period exhibited a greater demand also. Cotton seed was greatly more in request, our expenditure being in the five months £1,068,642. Flax seed and linseed were sent to us in smaller quantities. There was a noticeable decrease in the supply of foreign hops, also on the expenditure, the high prices of last year not being maintained.

For nearly 1,000,000 lb. of wool less than we received in the first five months of May last year we have had to pay nearly £150,000 more. The following tables shew the countries from which we received our supplies and the values. It will be noticed that Australia is by far the most generous exporter.

## QUANTITIES.

	Five Months ended May 31, 1872. lb.	Five Months ended May 31, 1873. lb.
Wool, Sheep, and Lambs.		
From Countries in Europe	14,324,636	12,017,489
„ British Possessions		
in South Africa	15,442,224	15,955,831
„ British India.....	9,336,686	7,650,004
„ Australia .....	120,179,919	126,163,100
„ Other Countries ...	15,235,027	11,839,828
Total.....	174,518,492	173,626,252

## VALUE.

From Countries in Europe	£838,800	£673,447
„ British Possessions		
in South Africa...	961,715	1,100,907
„ British India.....	409,411	346,169
„ Australia .....	7,492,490	7,884,254
„ Other Countries ...	700,360	543,319
Total.....	£10,402,776	£17,547,096

We have very little to set against this account in the way of exportation. For butter sent abroad we received £9787, for cheese



£32,183, and for horses £59,125—a much smaller sum than we received in the corresponding terms of 1872 and 1871. We wish that the Board of Trade would give us figures with respect to the number of horses that we import. Such information would be interesting at the present time, when the questions of horse flesh generally, and how to improve our breed of equine animals are so much discussed.

The wool that we produce at home has been so much in demand that we have not sent so much abroad in the course of the five months ended as in last year—in the corresponding term, only 1,892,636 lb. to compare with 3,973,379 lb., and our receipts for it were respectively £160,294 and £326,338. From the subjoined table our readers will

learn who our principal foreign customers for this commodity are :—

	QUANTITIES.	
	Five Months ended May 31, 1872.	Five Months ended May 31, 1873.
Wool, Sheep, and Lambs.	lb.	lb.
To Germany.....	915,667	733,412
„ Belgium .....	769,899	317,237
„ France .....	414,140	156,750
„ United States.....	1,368,571	427,285
„ Other Countries.....	505,102	257,952
Total.....	3,973,379	1,892,636
	VALUE.	
To Germany .....	£76,084	£64,667
„ Belgium .....	67,381	28,589
„ France .....	33,690	12,250
„ United States .....	99,767	33,063
„ Other Countries .....	49,416	21,725
Total .....	£326,338	£160,294

## EXPERIMENTAL MANURING AND THE DISPOSAL OF THE TURNIP CROP.

FROM a paper upon the “Growth of Roots,” read before the Ixworth Farmers’ Club by Mr Peter M’Lagan, M.P., we make the following extracts :—

Some might object to applying manure on light lands in the autumn, but none, he thought, would object to applying manure in the autumn on heavy lands, it being well known that clay lands especially retained all the valuable salts in the manure. On light soils the power of retaining them was not so great. He had himself tried many experiments as to the advantages of autumn manuring. He selected a gravelly soil with a gravelly subsoil, and in the month of November he applied 16 tons of manure to the acre, on a part of it. He left the manuring of another portion till the spring, and left another part without any manure whatever. In the spring the whole of the land was treated in the same manner, and he afterwards applied another 16 tons of the same manure to

another part of the field on the ridges. In the December afterwards, having raised a crop of turnips he weighed them. From the land manured in the autumn he had 15 tons 16 cwt. per acre, from that done in the spring 15 tons 10 cwt., and from that which had no manure at all 8 tons 10 cwt. He also had tops weighing respectively 3 tons 19 cwt., 4 tons, and 4 tons 15 cwt. The quantity of manure which should be applied to the soil depended very much on the quality. There was a great deal of misunderstanding both north and south of the Tweed respecting the quality of manure. They were apt, he thought, to attach much more importance to manure from oilcake and other feeding stuffs than they ought to do. They would have as much manurial value in a ton of good Peruvian guano containing 15 per cent. of the requisite ingredients, and costing £15 per ton, as they had in oilcake at £4 per ton. Then it must be remembered that they had to consume



that oilcake; a great part was used by the animal that consumed it in making flesh and bone, so that the whole of the manurial matter did not go back to the manure, and they found, in Lincolnshire, that very often not more than half the value of the cake was given for the manure, in other places a quarter, and some a third. It was, he thought, quite a delusion; the farmer should act entirely as a merchant. If he could buy in the market any manurial stuff which would produce the same effect as oilcake, he did not see why he should buy oilcake at half the value. He had found that the manure did not amount to more than one-sixth of the value of the cake which was purchased. A light land farmer found it to his advantage to give his sheep oilcake, because the value of his soil was thereby increased, but he did not advise any farmer to put such a high value on oilcake as was generally done in this country. It depended a great deal, however, in what manner the oilcake was consumed. If it was consumed by a young animal, it was very evident that the manure could not be of the same value as if it was consumed by an old one. Again, if an ox well on in condition, the manure which would be made from the cake consumed by such ox was of far more value than the manure from the same quantity of cake consumed by a lean animal. Besides farmyard manure, there were other most important manures used for the turnip crop, such as phosphatic manures, and ammoniacal manures. It had generally been said that phosphates were good for the growth of turnips, and nitrogenous manures for the growth of green crops. This might be said to be generally true, but at the same time they should bear in mind that when the soil had become thoroughly saturated with ammoniacal manure, it was essential, in order to bring out the value of it, to apply a considerable quantity of nitrogenous manure as well. In this manner, therefore, they might raise a very good crop of turnips by applying nitrogenous manure, from the fact of the ammoniacal

manure being there already. A question had been often raised as to whether it was desirable to apply phosphatic manures dissolved or undissolved. The proper way, he thought, was to apply some of it in a soluble form, and the rest undissolved. In most of the manures they would find both forms of phosphates. One thing he had remarked was that when they had all the phosphates dissolved in the manure, the root was very apt to come rapidly to maturity, and if there happened to be two good growing months afterwards, they received no benefit whatever from them. That arose from the fact of there being too little ammonia in the manure, or too much super-phosphates. He never applied manure to his fields without leaving some part unmanured, and weighing the crops afterwards.

Speaking of the turnip as an alimentary crop, he said that the quantity of turnips that an ox would consume was a most important one to the farmer. There was a great deal of money wasted by giving an excess of turnips to animals. In some places, cattle were allowed to eat turnips *ad libitum*; the result was that they consumed as much as 3 cwt. each per day. That would never pay, and, besides, the animals were injured by it. Therefore, the quantity should be limited. When no cake was given, the quantity should be about 150 lbs. A plan which he had himself resorted to, finding the turnip crop a most expensive one, was the pulping system. He had pulped turnips for something like 100 head of cattle at a time, and he never gave them more than 100 lb. each per day, and the young cattle 70 or 80 lb. This plan made the roots go much farther. Again, instead of giving oil-cake he gave rape cake, which was identical with oil-cake in composition, but not so agreeable to the taste. By mixing it, however, with a little cottonseed cake, reducing it to powder, and then mixing it with a little cut straw or chaff it became very good. With respect to the manurial value of the turnip crop, Mr M'Lagan said, supposing two animals were feeding an acre of turnips,



consisting of about 10 tons, during about 5 months, they would consume as well something like a ton of straw for manure. That ton would produce something like 6 or 7 tons of manure. This was a most important point to know, and if they carried it out a little further they would find that they could not make a sufficient quantity of manure on their farms for the straw they grew and the turnips to carry on their green crops. Supposing a 100-acre farm was managed on the five-course shift, for two parts of white crop and one part of roots, they would make something like 260 tons of

manure. They had to manure 20 acres for the next crop of turnips, and, supposing they gave 18 tons to the acre, that would require 360 tons. The difficulty was, that they could not make on their farms, farming as they ought to farm, a sufficient quantity of manure to manure the farm thoroughly. The consequence was, that they were obliged to go to the manure merchant and purchase a considerable quantity; but he was convinced that if they bought unadulterated manure, they could not possibly invest their money in anything that would pay them better in the long run.

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### THE PROPER TIME FOR HAYMAKING.

A SEASONABLE word of advice upon haymaking, is tendered by Mr D. G. F. Macdonald, who, in a letter to the *Times*, points out that an immense quantity of hay is annually spoiled by farmers plodding on in the ancestral ruts, and clinging to the old hazy traditions of the customs of their district, heedless of the appearances and circumstances which guide their more enlightened brethren as to the proper time for mowing this important crop. Because, continues the writer, Mr Jones, whose land is well-sheltered, loamy, friable, and dry, has begun hay-making, Mr Brown must follow suit, although his land is cold and exposed, clayey, mossy, and wet, and notwithstanding, too, that he has applied different dressings and manures to the soil. It is surely worse than absurd thus to do out of season, what others do in season, simply to be up in the race, and to make hay on dry soils and wet, clayey soils and mossy, sandy soils and loamy, at the same time regardless of the condition of the grass plants.

The right time to mow grass greatly depends, of course, on the system of farming pursued, on the character of the pasture

which produces it, and on the nature of the soil and climate, but especially on the condition of the plants as regards maturity. Hay is just as much injured by being allowed to get over-ripe as it is by being cut too soon. Moreover, the farmer ought to be guided in a great measure by the use to be made of the article—whether to feed horses, cows, young stock, or sheep. If for horses at work, the grass should be mowed after it has passed out of blossom, when the seed is in the milk, because, at this stage, it contains the largest quantity of nutritious substances, such as sugar, starch, gum, &c., which are of the highest value, contributing much towards rendering hay such a choice article of food. If for cows, it should be cut earlier, so as to leave the grass as nearly in the green state as possible—soft and succulent—because in this condition it contains a larger quantity of juices, which assimilate well in the animal, and produce a greater flow of milk. If for young stock and sheep, the grass should be mowed when in full flower, because, after flowering, and as the seed forms and ripens, it is exposed to loss in its nutritive matter by the seeds being shaken out and the brittle



foliage breaking off during cutting and making, and the grass itself, especially the rye-grass, becoming almost a woody fibre, losing nearly all its sap and sweet aroma. In short, hay made from over-matured grass is no better than ordinary straw, if so good.

Clover, again, which is such excellent food for milch cows and sheep, should be mown immediately after blossoming, before the seed is formed. It should be cured by gently turning over the swathes in such a manner as to lose as little of the foliage as possible, and the tedding-machine ought never to be used under any circumstances. Moreover, clover ought not to be exposed long to the sun, but, being wilted and partially dried, should be put up into small cocks and left to cure for four or five days, when it will be fit to cart away. A very good method to prevent fust in a wet season, is to carry the green clover and lay it in alternate layers with dry straw, sprinkling a little salt on each stratum. Fermentation will speedily set in, giving a sweet clovery flavour to the straw, such as cattle like very much and eat with avidity. Besides, straw is a good corrective of the heating qualities of clover ricks. The most profitable use of clover, however, I have

found to be to cut it green for the farm stock or to feed it off with sheep.

Just one line as to the time most likely to afford favourable weather for hay-making, now that the fluctuation in the quantity of rain in the year has been ascertained with such exactitude by long and careful observations. Without placing much faith in the old tradition of St Swithin, I may remark that the 15th of July is generally a turning point from fair to wet weather. No doubt it may sometimes prove the reverse of this, but that may well be called the exception, and not the rule.

At all events, farmers would do well to bear in mind the old proverb, "Make hay while the sun shines;" that, as a general rule, the beginning of July will be more favourable for the operations of the hay-field than the latter part of that month, and that it would be advisable for them to cut their grass in time to get it up by the middle of July, if not before, since it has frequently happened that persons who might have secured their hay in good condition, during the first fortnight of July, have, by neglecting the opportunity, had great quantities spoiled by long-continued rain following.



## DUTCH CATTLE.

BY PROFESSOR FURSTENBURG.

CATTLE breeding has flourished in the rich lowlands of Holland from the earliest time.

In the first century the Frisians, after their subjugation by the Roman General Drusus, were compelled to pay tributes in hides; the supply of which proving insufficient, many of their herds were confiscated by the Roman General Oilennius. The Frisians thereupon rose in rebellion, defeated the Romans, and drove them from the country in the year A.D. 28.

The rich marshes reclaimed from the sea and protected by artificial dykes from the aggressive waves are covered with a luxuriant growth of grass, which is found so good for cattle that their breeding is more lucrative than agriculture. The entire industry of the landholder is therefore directed to the improvement and care of his stock, so that it is not surprising that extraordinary results have been attained.

The breeds of cattle in Holland may be divided according to their locality as follows: —1. The breeds in the provinces North and South Holland and West Friesland. 2. The breeds in the provinces Gronnigen, Guelderland, Utrecht, and Overijssel. 3. The breeds in the province of Seeland. Although these breeds are closely related, still they shew differences resulting from keeping and the various purposes for which they are bred.

*Breeds in the Provinces North and South Holland and West Friesland.*—The breed most renowned in the kingdom for its great milk-producing qualities is found in these three provinces. But North Holland in particular is noted for the manner of keeping cattle, which are known by the name of "Amsterdam race," being no less remarkable on account of size than for the great production of milk.

The pastures of North Holland are said to contain 100 000 "morgen" (1 58-100 morgen equals 1 acre), on which 600,000 head of cattle are kept; therefore, on an average, every acre furnishes nourishment for 40-100 head of cattle. The peasants are engaged almost solely in cattle-breeding, and the keeping and care which these animals receive here has almost become proverbial on account of its perfection.

The stable is plastered, and the stalls have drains behind them, in which the excrements of the animals are received. On account of the want of straw, none being grown because the land is used for pasture, the stalls are washed and sprinkled with sand twice daily; the cows' tails are fastened to a rope passing across the ends of the stalls for the purpose of keeping them from becoming dirty in the drain. During the summer, at pasture, a cover of linen or string netting serves as a protection against insects and the weather. In order to preserve the breed in the greatest possible perfection, only such animals are used for breeding as have been deemed fit by a Board of Commissioners organized for this purpose. The milk is used exclusively for making cheese, which comes into the market under the name of "Edam cheese," named after the town of Edam, situated on the Zuyder Zee, in the same province, and is esteemed the best cheese in Holland. The cattle here are mostly spotted black and white; however, brown and blue or grey mixed are found. Their height is considerable, being not under 2 Amsterdam ells (4 51-100 feet); the length of the body in proportion to the height, the middle part of which is particularly developed, the quarters fleshy, neck rather short than long with a strong dewlap; head narrow and long, with the forehead slightly depressed; fine



horns crooked forwards, and large projecting ears. The withers are often narrow, the back on the other hand, broad across the hips, which are not very prominent; the tail fine and long with a good tuft of hair; the position of the hind legs strong and straight (not knock-kneed), the hind-quarters broad and roomy, and the bag well developed. The lower part of the legs above the hoofs is invariably white, which is regarded as a sign of the pure unmixed breed. The live weight of the cows is 1200 to 1400 lb.; that of bulls reaches 2000 lb. when full grown and fatted. The cows are unusually productive of milk, and give an average of 3000 quarts and over per annum.

A very excellent milch cow of the "Amsterdam Race," from the royal cow stable in Eldena, which was bought with a few others at the International Exhibition in Hamburg, took the first premium for milch cows of the Netherland race at the International Exhibition of live stock at Stettin in 1865. This cow, fed in the stall only, gave in one year the great quantity of 6142 quarts of milk, and kept up afterwards to 4000 quarts in an equal length of time.

To the breed of North Holland are nearly related those of South Holland and West Friesland, and differ perhaps only in that the latter are larger boned, and in general of not so pleasing a form. In regard to their milk-producing qualities they are about equal. The manner of keeping the stock, and the use of the milk, is also the same, viz., the manufacture of cheese, while the calves are raised and sold as young stock at high prices.

From these three provinces, the former two of which suffered so much lately from rinderpest, milch cows are bought for the best dairies in Germany.

A lively trade in this stock has grown up, the centre of which is the East Frisian town, Weener, where most of the large dealers live. The price paid for the animals goes as high as 120 to 150 Prussian thalers (a thaler is about 75 cents). Young cows, with good signs, are the most profitable to purchase,

but also the most expensive—170 to 180 thalers is not seldom paid, but it must be remembered that this stock has just attained its full use. Usually in the fall, when the best part of the milking season is over and the cows in calf, they are delivered by dealers and bear transport very well in this condition. Two and three year old heifers, large and with calf, are also sold at this season at 100 to 120 thalers. Since the future milk-producing qualities in these can never be so certainly determined as in a good milch cow, the purchase of large heifers is never so certain as that of cows. Cattle imported from Holland are generally branded H. V. (*Hollandisches Vieh*—Holland cattle) on the right horn.

Holland cows are well adapted to soiling, although at home they are accustomed to pasturage. They are kept profitably on the latter only when its abundance facilitates grazing and makes corporal exertion unnecessary. Therefore a great error would be made in placing these animals on a scant pasturage, and they are not at all adapted to the pasturage of a light soil. The result of stall feeding is more favourable, because proper care and fodder can be given the stock without its exertion.

We have received from no other race an equal quantity of milk with the same feed, as years of observation in the cow-stable of the Academy at Eldena has shewn.

Three years ago (in 1865) different races were kept here, viz., milch cows of Toudern and Breitenburg in Schleswig-Holstein, of Ayrshire in Scotland, and of Holland. The yield of milk this year of these races was:—

1. Four Toudern cows gave 9337 quarts, or an average of 2334 quarts, or 6 3-10 quarts per day for the year. The largest milker gave 2345 quarts, the smallest 2020 quarts.

2. Three Breitenburg cows gave 8594 quarts, or an average of 2864  $\frac{2}{3}$  quarts, or 7 85-100 quarts per day for the year. The largest milker gave 2946 quarts, the smallest 2820 quarts.

3. Three Ayrshire cows gave 5386 quarts,



or an average of  $1795\frac{1}{3}$  quarts, or 4 92-100 quarts per day for the year. The largest milker gave 2249 quarts, the smallest 1415 quarts.

4. Twenty-two Holland cows gave 78-100 quarts, or an average of 3550 quarts, or 9 73-100 quarts per day for the year. The largest milker gave 6142 quarts, the smallest 2526 quarts.

The average feed per head in the winter was daily—10 lb. summer straw, cut fine;  $2\frac{1}{2}$  lb. oat and wheat chaff; 25 lb. beets; 10 lb. hay; 8 lb. refuse malt from beer-brewery; 3 lb. rye-bran. This feed is considered about equal to 42 9-10 lb. hay.

During the summer, the cows were fed daily per head 135 lb. green fodder, viz., Clover and Vetches (of the latter very little was sown), and three times a day 8 lb. hay.

The summer feed is considered equal to 45 lb. hay per day.

Although there is no doubt that the Holland cows eat more generally than the smaller

Ayrshire and Toudern (for the fodder was not weighed out for each animal separately), this is of minor importance in comparison with the far greater amount of milk given by the former. The greater quantity of feed consumed by the Holland cows can be estimated, viz.:—Nine of them stood at one crib, while ten of the smaller stood at another of equal size; the fodder was, however, divided the same in each. The proportion is as nine to ten, or when the smaller cows eat 45 lb. of hay, the larger ones ate 50 lb.

From the quantity of milk given, the Holland cows used a trifle over 5 lb. weight of hay to produce 1 quart of milk; Breitenburg used 6 25-100 lb. of hay; Toudern, 7 lb. of hay; Ayrshire, 9 lb. of hay. By these results it cannot remain doubtful which race is preferable.

In Eldena only Holland cows are used for the dairy, whereas on selling the races, other English Shorthorns were bought for beef cattle.—*The Cultivator*.

## CATTLE AT VIENNA.

IF we judge from the exceedingly judicious and well-informed remarks of the *Times* "Special Correspondent" at Vienna, the exhibition of stock at present being held in connexion with the great world's show in the capital of Austria is a sight worthy to be seen by all lovers of well fed and well cared for cattle and sheep. Although England is somewhat poorly represented in the stock department, we learn that a large number of sheep from native exhibitors has been forwarded, and the names of Lords Chesham, Walsingham, and Sondes, as well as that of Messrs Russell, are a sufficient guarantee of the quality of the exhibits. The cattle show, we are told, is prettily situated "in a vast natural meadow, extending to the east of the Exhibition enclosures, and embraced in a

wide sweep of the finest timber in the Prater." We quote the following interesting remarks of the correspondent regarding the English department of the show. He says:—

The whole of the little camp, although somewhat theatrical in the fresh splendour of its display, is true enough to life and nature to be exceedingly interesting to strangers. The Emperor himself, who must have been familiar with it, lingered to admire. When he passed on and entered the Exhibition yards, it was a striking change from the east to the west, from wild nature to refined breeding. He found himself among the English sheep and shorthorns. England, of course, does not send very much, but what it does send from so far is of excellent quality. Among the chief English exhibitors in sheep is Lord Chesham, with those beautiful Shropshires, on whose breeding he has spared neither pains nor money in the course of the last ten years, and who commands 70 guineas as an ordinary price for one of his rams. Sixteen pounds of wool at



2s. 6d. per pound is tolerably remunerative to turn on a single fleece; and although his beauties can scarcely be better for their journey, they do not seem to have suffered much by it. In a different class, the splendid Kents of Messrs Russell, of Horton Kirby, near Dartford, yield the same weight of fleece. It is curious to contrast the magnificent length of these fleeces of theirs with the shorter and denser staple of the merinos, which to the feel and in the colour is soft and yellow as thistledown. Messrs Russell's pens contain no less than thirty animals of very even merit. Lord Walsingham and Lord Sondes shew some superb Southdowns. Mr Fulcher, of Elmham, sends his Cotswolds, also with an extraordinary length of wool, although somewhat rough, like their natural pasturage. Among the cattle, a shorthorned bull of Mr Fowler, of Aylesbury, attracted much admiration, although he was closely run by another of the family belonging to the Archduke Albrecht. You can distinguish in these shorthorns the great aims of the English breeders—fine bone carrying the highest quality of meat, the flesh laid on upon the chine, where it commands 1s. the pound, instead of below, where it only fetches 6d. Several of the English exhibitors were presented to the Emperor, who was highly complimentary in his remarks. I may add that after he had completed a most conscientious general inspection, he was dismissed at the gates with a ringing English cheer which did great credit to the lungs of the handful of our countrymen who raised it.

The continental breeds of stock which are shewn seem to be very numerous, and their varied appearance must prove a highly picturesque sight. In speaking of this section of the exhibition, the correspondent says:—

We have admired at home as fine or finer specimens of our breeding; but no Englishman has ever seen before such a collection of breeds which are altogether novel to most of us. It is unfortunate that the arrangement should be so unmethodical; a single great proprietor, for instance, shews a jumble for draught or flesh, wool or mutton, and altogether irrespective of races; and the English jurors and their experienced vice-president, Mr Herries Maxwell, naturally shrink from their Herculean task of a general comparison. Luckily the outsider cares only to please his eye or enlarge his experience in a desultory examination, and certainly, in the pursuit of knowledge, he passes from surprise to surprise. Even when you are inclined to be severe upon the shapes, you often learn that there is a good reason for apparent defects. Thus, when you see an enormous ox, standing 5½ feet at the shoulder, his shoulders massive and his chest magnificent, but dragged over the loins, and with his hind

quarters gaunt and meagre to weediness, you are informed that he is bred so with a purpose. He is intended for draught; the lighter he is behind, so that strength is not altogether lost sight of, the greater the pace; and these apparently ill-balanced mammoths can work on heavy soil up to the ordinary pace of English horses. To eight or nine years of age they are sent to work in the fields, then they are shut up to be fattened for the butcher. It is true that, as your Viennese experience tells you, Austrian beef is scarcely equal to the best that Islington brings up from Aberdeenshire. Among the pure native breed, none are more gracefully shaped than some of those from the mountainous provinces, especially the Tyrol and Vorarlberg, where almost every valley seems to have its own variety, often differing widely from that of its neighbour. Here you see a delicate cream-coloured bull and cow of the Mariaholfer breed, slightly light behind the shoulders, but otherwise almost as powerful and compact as they are beautiful. There, again, and no less beautiful in their way, is a mouse-coloured pair from the Zillerthal, in Tyrol, much of the make of the Bernese, with the deer-like head of the Alderney. Foreigners are there in plenty—the great white steers that you see labouring in the valley of the Arno or on the plains of Piedmont, huge black and white milkers from the polders of East Friesland, and neighbours and near relations of theirs from the rich meadows of Oldenburg. There are crosses of all kinds, and by judicious interbreeding you often seem to develop most extraordinary size and strength for purposes of draught. You see buffaloes from Hungary and the Principalities, who support inspection much more placidly than some of their quieter-looking congeners. The sheep that are shewn are mostly merinos, and their owners look for their profits more to the wool than the mutton. Some of the very finest, with their long spiral horns twisting themselves out of sight among the shaggy wool on their heads, and their skins overlapping in heavy folds on their obese necks, come from Silesia and Pomerania. *A propos* to wool, there are some characteristic woolly pigs from the valley of the Danube, of the race that the swineherd Princes of Servia breed by thousands in their magnificent forests.

It would seem that the attendants upon these variously bred and variously used beeves form in themselves quite a fantastic and panoramic show. The contrast between the sober, staid, habilaments of the English herdsman with the gorgeous clothing of the Hungarian, Styrians, and Tyrolese is very marked. The women who come from the Styrian and Carinthian dairies are resplendent in "*foulards* of parti-coloured cotton, twisted



with tight turbans round their glossy heads, silver necklaces, and strings of huge imitation pearls round their short necks, crimson bodices laced in silver and loaded with silver buttons, petticoats striped in crimson and white, scarlet stockings, and high-heeled half Hessian boots, while when they turn, you see there are showers of ribands streaming down from the combs in their back hair."

Altogether, it would seem that although continental breeders and feeders of stock are greatly inferior to our own exhibitors in their art, there is little doubt that they continue to make rapid strides in the improvement of their breeding practices. There is a great and noticeable lack of the methodical feeding

which has been so successfully carried out by British farmers; but the specimens of our skill exhibited, will, we have no doubt, stimulate our continental compeers to greater exertions in the future. Those who attended the Hamburg Show can notice how vastly, since that time, foreign cattle have improved. That exhibition was the means of introducing stock from our own country on to the continent, which has been the means of giving kindliness to the nature of the native breeds. We doubt not that the foreigners at Vienna will readily recognize the merits of our shorthorns, and that from the display of cattle and sheep there, a large and profitable trade will spring.

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### HAYMAKING.

AN "old Scotch Laird" gives the following excellent and seasonable advice upon the above important subject:—That hay should be mowed when the blossom drops from the plant, and while the milkiness is in the seed, is a generally received maxim; but the successful winning of hay is concerned mainly with the time that elapses between the mowing and the final storing of the crop for preservation in the rick. Where rye-grass is grown for seed the case is different, as the seed or pickles must be well filled, even though some of them should be shed in the act of mowing, for the seed at this stage holds very slightly by the gloome. Clover, like ryegrass, is also best harvested immediately after blossoming, and it bears very little stirring. It would suffice to turn the swathe once in preparation for cocking. We do not accord with the said writer as to forecasting the weather, though the fluctuations or range of the annual rainfall are known, and may be guessed approximately, that knowledge offers no key as to the time of occurrence of rain in our fickle climate. We enjoy no immunity from rains at any special time,

and the early part of July is not unfrequently characterized by wet weather.

By certain appliances some farmers succeed in harvesting corn and hay crops independent of weather. Mr Neilson, of Halewood, states that he carries his hay before it is in condition in order to escape untoward weather. He places a wooden trough the whole length, and in the centre of the rick, which he provides with slides to let on and cut off the passage of air. Each rick is also built with a vertical channel that communicates with the longitudinal trough formed by a sack filled with straw and gradually drawn up in the progress of building. He then applies currents of cold air to the whole by means of a fan driven by a 1-horse engine, and the hay becomes perfectly cured. He claims in behalf of this scheme a saving of three-fourths the expenditure of manual labour.

It is half-a-century since we have known of this plan having been acted on; and in the dripping climate where it was tried, it was a partial success; but however practicable it may be, the scheme was never accepted but by the original experimenter. The great thing



in curing hay is "cocking," and not leaving it spread out till all the substance has evaporated and the hay rendered almost worthless. If mowed dry in the morning, and then tedded, if in a windy and sunny day, it may be cocked before night. If properly cocked, an ordinary rain will not injure it, at least but very little. Clover, as well as all descriptions of hay, should shew a green colour, and emit a honey odour, which may be secured by following the above directions. These rules are carefully followed by growers who sell their hay, as they always command the top price; but in districts that we could name thousands of pounds were lost in past years by the damage sustained by rain, the last days of June having been showery, and the downfall in July being no less than  $4\frac{1}{4}$  inches.

After calamities, it has been well said, it is the best time to apply remedies, for then they are best attended, and much may be done by the exercise of skill, promptitude and watchfulness in counteracting the effects of untoward weather. The common practice in some counties of carrying it to the rick with waggons, is the weakest point in haymaking during catching weather. Cocking, or "coiling" as it is styled, is the only way by which hay can be made in leaky districts, for by this method as much can be done in one day, as may be done in four in hauling to the rick. Aeration is indispensable, but the less sun and

rain the better, for it can be won without withering in the small pyramidal heap without detriment from sun or rain. In the comparatively green state, it is not easily spoiled by wet, as it is somewhat impervious to rain, but after it once becomes hay it is soon damaged. This fact should ever receive attention, for repeated broadcasting and successive drenchings, after a day or two, are its ruin. If rain should follow the tedding process, it ought to be dried atop before doing anything more with it. If rain is imminent, it is safer in the swathe, but in reliable weather, the hay-making machine should shortly follow the mower. A day lost in a tract of uncertain weather may involve the loss of half the value of the crop, so it is of paramount importance to use every means to abridge the period of exposure. Much must depend upon experience and observation in the whole processes indicated, for such is the diversity of the condition of a crop, both as to dampness from recent rains, as well as to the amount of the internal sap or juice of the plant, that it cannot be expressed in terms that can be understood in its progressive stages of seasoning. It should be also noted that prudent husbandmen never take down too much of the crop at once, unless where there is a great command of workers, for with a large breadth the hazard is intensified, and careful and skilful precautions never fail to reward the pains in the long run.



## THE SEWAGE OF TOWNS.

A PARLIAMENTARY return recently issued shews the progress of the local authorities in dealing with the sewage of towns. In forty-two instances the sewage is disposed of by means of a farm. Fifty-four localities have adopted filtration, and thirty have used some method of precipitation. It would therefore appear that filtration is more generally acceptable than any other method, and that precipitation has the fewest instances of practical operation. Among the sewage farms, complaints in regard to the "effluent water" are reported to have arisen in only three cases. Filtration has not been so successful, complaints having been made in twelve instances. It is rather remarkable that only one case of nuisance is reported from the use of precipitation, this occurring at Worksop, where a "slight complaint has been made on account of the fouling of the stream near the works." It is observable that the return suggests no nuisance except in the case of the "effluent water." Strictly speaking, this would not include any nuisance arising from stagnant pools, or ill-managed sewage farms, or from noisome effluvia arising out of a drying process, or the use of chemicals. The return from St. Mary's Church, where filter beds are employed, mentions that there have been "complaints of the smell of carbolic acid." Among the towns adopting irrigation are fifteen with a population exceeding 10,000, the highest on the list being Blackburn, with a population 76,000. Ten of the filtration towns have a population exceeding 10,000, the greatest population being 45,000 at Cheltenham. This town appears under both heads, having treated its sewage by filtration for 17 years, and passing the effluent water on to land for the last two years only. This innovation on the older method is explained by the state-

ment that "a nuisance existed when the liquid sewage was discharged into the brooks, but no nuisance has existed since it was applied to land by irrigation." This duplication of towns under different headings occurs in more than one instance.

As for commercial results, at Banbury the working expenses and the receipts of the sewage farm are nearly equal. Cheltenham, in the category of the sewage farms, is pretty much in the same position as Banbury. Croydon shews a loss. Ormskirk has a deficit of rather more than 10 per cent. on the year. Swindon seems to have a slight profit. Warwick reports a year's expenditure of £797, and receipts, including estimated value of crops, £2107. But no charge is made for the outlay, at Warwick, on pumping engines. Upon the whole, the financial results of sewage farming are unfavourable, the foregoing being among the best. In some instances the works are only just coming into operation, as at Merthyr Tydfil, so that money returns either cannot be given, or are manifestly unfair as a criterion for the future. The cost of purchasing land is generally a heavy item, the interest and repayment of loans constituting a serious drawback against the receipts. Towns adopting filtration escape the expense of purchasing large areas of land; but, while their outgoings are small, profit is not to be expected though the special drainage district of Norton seems to enjoy a favourable balance-sheet. Two other special drainage districts are in the same enviable position. The Local Board of Swaffham filter their sewage with flint stones, at a cost of £1640 for the year, although the population is only 3700. The receipts are *nil*; and as this is the first year, we hope the next will be better, the present cost of filtering the sewage being equal to the manu-



rial value generally assigned to it. Precipitation, so far as the returns go, has even a worse appearance than filtration as concerns profit. Bolton having adopted the A B C process, considers it too early as yet to give any definite result. Leeds, with the same system, is in a similar position. Both towns are confident as to the goodness of the effluent water. At Southampton, the A B C works are not complete. Hastings, where the same mode of treatment has been employed, does not appear in the return, the authorities not having raised any loan for the

purpose of carrying out or promoting the plan. A singularly elaborate mode of filtration is carried out at Watford, the sewage being made to run the gauntlet of seven different preparations, going horizontally through one, upwards through another, downwards through three, and in an unspecified fashion through two others, the materials including coke, cocoa-mat, shingle, gravel, tan, and animal charcoal. All this comes after precipitation, in which the sewage is treated with lime, chloride of lime, and M'Dougall's powder.

## THE DUTY OF THE FARMER AND THE LABOURER.

By Mr WILMOTT.\*

I PROPOSE to divide my paper upon this subject under three heads—first, Labour *v.* Capital; secondly, the agricultural labourer; thirdly, our duty. Now as to my first subject, viz., Labour *v.* Capital, the prosperity of this country has no doubt had its bad effects, and, like a young man run wild, it is discontented with everything, and always wanting something fresh. The wants of all classes have become greater, and as the middle classes now hold the position formerly held by the rich, and with this state of things, of course the working classes in turn must improve their social position, and to this no sensible thinking man objects. I know many here who would do all the good they could to improve the social, moral, and physical condition of their workmen. Money brings with it many social advantages; but it also brings with it many cares and duties, and true it is that many aching hearts ride in carriages, but there is no doubt that every man ought to do the best he can for himself and those belonging to him. It is this desire that makes the man of capital enter into business

speculations. It is this desire, I hope, which makes the working classes of this country agitate for higher wages, but in trying to do all we can for ourselves, it is our duty to take care that we do not injure others. We will say a man with two or three thousand pounds enters into some business, say farming if you like, or any other business where he would have to employ labour to carry on such business. This man is a true patriot, for he cannot improve his position without helping others. He knows that he will have to contend with misfortunes, and that if he succeed in the end, it will be by careful attention to his business; but he fears not, because he hopes to benefit those he holds most dear. Like the man in the parable, he tries to make his one pound ten pounds, and thus hand down to posterity what has possibly been handed down to him, viz., money, not decreased in value for the use of future generations. But what other thoughts must now present themselves to the man of capital before entering into business? He must remember that there were men going about the country teaching those whom he will have to employ that his interest and the interest of his

\* Paper read before the Tunbridge Wells Farmers' Club.



labourers are not the same, that he is not to be respected—not even his family or position; that if he embarks his capital he will be looked upon as an oppressor of the poor, and, to use the term of one speaker, he will be called a “blood-sucker;” if by chance he should drive a horse or live in a decent house, or wear a ring, or his wife a brooch, he will be told that it is money screwed out of his workmen, and that he ought not to have them. Will not this make the man of capital consider well? He will see that those with whom he would like to be on good terms may at any moment turn round upon him and ruin him. Will not many of the timid, aye, and some of the brave too, say, “Rather than be in such an unmanly position, I will live in love and charity with my neighbours, upon the interest of my money, ‘for better is a dry morsel and quietness therewith than a house full of riches with strife?’” The desire of the working class for higher wages I hope proceeds from a desire to do the best for those about them; there is not one here, I am sure, who would not give to the working classes all they ask if it could be done. I am sure no one has shewn more than the capitalists of this county, not only their desire to pay their men, but also to educate their workmen’s children, and yet with all this they could look with more respect upon some demagogue who has nothing to lose, but hopes to obtain the pence of the working man. What then ought the labourer to do? Why, instead of making capital his enemy he ought to make it his friend.

THE LABOURERS’ CONDITION, WITH SPECIAL  
REFERENCE TO SUSSEX.

Now to the second part of my subject, namely, the agricultural labourer. I know, gentlemen, that I cannot tell you anything about his condition that you do not know. I wish every one had as good a knowledge of his condition as many of you here to-night have. It is this want of knowing the truth that makes many persons unaccustomed to farming believe that he is very much under-

paid. I believe the agricultural labourers were never paid so well before, and although I do not wish to say that they get more money than they ought to have, still I believe that they are paid more in proportion to the profits obtained by their labour than any other workman to be found. They justly complain that meat is dear, but what is the reason? Why there are nearly as many again get meat for their dinners every day than there were twenty years ago. Coals are dear likewise. What is the reason? Only because the workmen in the coal mines did not work, and so much more coal is used by all classes. What would be the result, supposing every labourer next week got his wages raised to 30s. per week? Only in a very short time it would be of very little more value to him than would be 18s. or 20s. now. How does the farm labourer’s money compare with the pay of clerks and warehousemen in London? There are many well-educated men working as clerks in London for £80 a year, have a respectable appearance to keep up, obliged to pay their railway fares to their homes in some London suburb; if married, obliged to keep their wives at home, and to pay for the education of their children, also about £20 a year rent. I know farm-labourers who, with a little help from wives, earn £60 a year, pay about £4, 10s. a year rent, have a good cottage, pay 2d. per week for the children’s schooling, and are not obliged to wear fine clothes, although they very often do. 24s. is good pay for a London warehouseman, and if you ask him you will find his position is very much worse than that of an agricultural labourer. [What a pity, then, that some of the great men whom I am afraid from political motives come down from London should sow discontent amongst our labourers! Should not they stay at home and improve the condition of their own people? Now, gentlemen, I do not blame the working men for this altered state of things. There is no doubt the employers of labour live in a very different style to what they did, but now they are men of capital. What I wish, however,



to convey to your minds is this—if we are to raise labourers up to whatever are their daily requirements, instead of to the sum that fair profits will allow, capitalists will not have money to pay. You can bear testimony to the fact that the agricultural labourers earn from 15s. to 20s. per week; that they have many advantages not enjoyed even by the rich money-making merchants of our busy cities: their rents are very low, and the cottages do not pay even a fair interest in many cases upon the money spent in building them. Their children are cheaply educated, and they have no rates or taxes, and have exceedingly few cares compared with their employers.

#### THE DUTY OF THE FARMER.

Now as to our duty. Under this head I propose to put before you what under the present circumstances I believe to be our duty, not only to ourselves and families, but to those in our employ. Let us treat them as men, and tell them plainly what we mean to do, and settle the question once for all; if we do not, we shall repent. Let us, while we are treating them as men, act like men to each other, for I consider that a combination on the part of the men calls for a similar movement on the part of the masters, and firmness now will prevent endless bother hereafter. I should be sorry to advise harsh or unkind treatment towards those who have been led by misguided men to despise those who have a sincere desire to be their friends. Surely we are not to remain idle and see our money taken from us. Why should we not have our meetings or plans arranged? and if Farmers' Clubs are ever to be of any use, now is the time for them to come to the front. I would have a meeting in every parish—branches of the Farmers' Club. I can give you a precedent by reading to you the account of a meeting held at Watton, Norfolk.

*"Agricultural Labour:* In consequence of the demand for increased wages on the part of

the agricultural labourers of the neighbourhood, a meeting of employers was held on Thursday at Watton, Norfolk, to decide upon a definite line of action in the matter. Lord Walsingham presided. The noble lord denied that the labourers received any pecuniary advantage from the organizations which they had formed. He also objected to the system of compulsion by which labourers sought to enforce advances in their wages. He foresaw endless mischief if farmers yielded to such a system. The meeting endorsing his lordship's views, pledged itself not to accede to any demand for higher wages made by labourers who were members of the labourers' Union, while at the same time those present were not unwilling to give a favourable consideration to any request made in a proper manner, wherever circumstances might be found to justify it. It was also resolved to form Wayland Farmers' Defensive Association. Mr Wyrley Birch stated that the object of the Association would be to protect farmers, and not to crush labourers." Now, gentlemen, this is quite my opinion, not to crush labourers; no one, I am sure has a greater desire to be the poor man's real friend than I have, and I think those who know me can bear testimony to that fact, because actions speak louder than words; and although as an employer I am anxious to protect myself, I should not be doing my duty if I did not enter a public protest against those men who are trying to sow discontent amongst the agricultural labourers for their own selfish ends. To the labourer I say, "Make the employer your friend, he it is that can do you good." To the employer I say, "Make the labourer your friend, he it is that can do you good." Remember you are each a useful part of a great nation, and if you both work on together in peace and harmony, whatever results in the good of one will be sure to result in the good of the other; both of you learn to despise false friends, and then like the oak and ivy, the greater the ruin the tighter you will cling.



# THE MIGRATION OF FARMERS.

By J. J. MECHI.

I CANNOT at all concur in Mr Charnock's wholesale condemnation of our American cousins, or in his statement that the American soil in Virginia and North Carolina is generally exhausted. If so, of what use would have been the millions of slave labourers now liberated? And how is it that America exports annually nearly 3,000,000 bales of cotton, besides producing enough for her own manufacturers? Whence come her other vast exports of the most varied character, from tobacco and turpentine to corn and cattle cake; and all this after amply feeding her 39,000,000 of population, and well feeding the following animals, which number three for one as compared with our own:—

EXTRACT FROM THE AGRICULTURAL RETURNS, 1871,  
BY OUR BOARD OF TRADE.

United Kingdom.		United States of America.	
Population .. ..	31,609,919	Population .. ..	38,923,210
Total area in English statute acres, exclusive of lakes and rivers ..	76,405,968	Total area in English statute acres, including rivers and lakes ..	2,095,600,000
	Acres.		Acres.
Wheat .. ..	3,831,655	Wheat .. ..	19,181,004
Barley .. ..	2,616,965	Barley .. ..	1,025,793
Oats .. ..	4,362,139	Oats .. ..	9,461,441
Maize .. ..	—	Maize .. ..	37,103,245
Cotton .. ..	—	Cotton .. ..	7,750,000
Sugar-cane .. ..	—	Sugar-cane .. ..	95,334
Tobacco .. ..	—	Tobacco .. ..	481,101
Beans, Peas, root and other crops, about .. ..	6,500,000	} Not enumerated.	
Permanent pasture for hay and grazing .. ..	22,525,761		
Grass under rotation .. ..	6,236,588		
		Acreage of meadows and permanent pasture for hay .. ..	18,591,281
Horses .. ..	2,648,223	Horses .. ..	8,248,800
Cattle .. ..	9,346,216	Cattle .. ..	25,434,100
Sheep and lambs ..	31,403,500	Sheep and lambs ..	40,853,000
Pigs .. ..	4,136,616	Pigs .. ..	26,751,400

How is it that in a single century her population (39,000,000) not only exceeds ours, but that her wealth equals ours? According to recent estimates the wealth of the United States is put at 30,000,000,000 dols., equal to

ours, which is calculated at £6,000,000,000 sterling. Could such results have been accomplished by an ill-conditioned, unworthy, or misgoverned people? During the last thirty years, although I have not accepted the many pressing invitations to visit the United States, I have conversed and corresponded with many Americans of various classes, and have received annually the copious and intelligent volume of the Transactions of the State of New York Agricultural Society; and I have come to the conclusion that they are, as a people, industrious, intelligent, enterprising, well-educated, humane, kind, and a law-abiding people, and if I had any doubt as to their humanity, it would be removed by the remarkable fact that at the termination of that awful and exciting civil war there was no revenge, and not a life was sacrificed, except of the villain who robbed the prisoners under his care of the food, &c., transmitted by their friends.

I have also seen "Britishers" (some from this neighbourhood originally) domiciled in the States, who, on their visit to this country, have expressed satisfaction with their improved condition; but I never found one who expressed sentiments similar to those enumerated by Mr Charnock. The money remitted to friends (by those who once had but little) to enable them to emigrate, is conclusive evidence of satisfaction and success. We all know that portions of many of the old States have been exhausted by constant cropping and never manuring or deeply cultivating; but even that land is becoming more valuable, owing to the increase of population in these longer settled districts; but in Virginia and Carolina it is the manumission of slaves that has caused the owners of land to sell the properties which they once



possessed, but have now no longer their capital (their slaves) to cultivate them.

Some idea of the vastness of the land in the States is conveyed by the fact that they have still 1,500,000,000 of acres of uncropped land to dispose of, and it amazes one when we hear that as much as 90,000,000 of acres (double the area of the farmed land of the United Kingdom) have been given to a single railway company. No wonder that their railways are numerous, and in fact general, and that they have been constructed at small cost.

As to the national temperament, I am a believer that race is greatly dependent on soil and climate, in men as in animals. Our American cousins are vivacious, conscious and proud of their country and their doings, as they have a just right to be, and are fond of talking about them. This is the result of a bright and hot summer, and a clear sharp winter. We Britishers are equally proud of our country and of our doings, but do not boast of them, for our dull and equable climate re-acts on our temperament, and renders us reserved and taciturn.

An American gentleman made this remark to me :—"In my country I sleep fitfully, often awaking; but when I come to England, my sleep is sound and undisturbed." So much for climate.

But even their exhausted lands are acceptable at the price asked for as compared with the cost of our own inferior soils; it is a mere nothing, and leaves an ample margin for improvement by artificial or by cattle-fed manures. I paid £24 per acre for my poor unimproved land, and it was considered cheap 30 years ago. We know that good land in this country sells for £50 to £70 per acre. For as many shillings good land may be

bought in the United States or in Canada. I sometimes ask myself why do people emigrate? The direct reply is, "to improve their condition and position in society by a large return for their capital, whether that capital be labour or money."

Here the relation of population to land is numerically as one to one, or nearly so. In the States and in Canada it is as one to twenty, or even more. It therefore requires no conjuror to discover in which labour and capital find the greatest social weight and remuneration. I met recently, at the house of a mutual friend, a gentleman on a visit from Canada. Some twenty odd years ago he was a farmer of 100 acres of land in Suffolk, with a capital of £600. He was a "nobody" in England, paid a high rent, tithes, and rates; was overstocked with game, and snubbed if he complained of it. His independent spirit rebelled against this, so he sold off, went to Canada, and with the £600 bought a farm ready cultivated, stocked, and cropped, of the same size as the one in England. His capital soon fructified; there was no rent, tithe, or poor-rate to pay. He was a landowner—his own master. He bought more land, became a magistrate in the district, and a respected member of the society in which he lived. The only thing he complained of was that Jack Frost now and then used his nippers most unmercifully; still there was no coal bill to pay, and yet plenty of fuel. Can we wonder, then, at labour and capital finding its way to more profitable regions?

This emigration must go on increasing, so long as our population increases and our acres do not multiply, more especially now that mighty steam has bridged the widest of oceans.



*AGRICULTURAL LABOURERS' COTTAGES IN IRELAND.*

ACCORDING to a statement of the Marquis of Hartington, in the House of Commons, the other evening, the pressure of business which the Government has to encounter this year will prevent this Session the introduction of a measure upon labourers' cottages in Ireland. In the absence of legislative action the Royal Agricultural Society of Ireland has taken up the question. The Society offers premiums for the most commodious and economically constructed cottages for farm-labourers, and at the last monthly meeting of the Council, the judges, Messrs H. J. M'Farlane and D. A. Milward, presented their report of inspection. They state that they have carefully inspected the several cottages built in 1872-3, which had been entered in competition for the provincial gold medals offered by the Society, and also the challenge cup given by the Duke of Leinster. They state that while they could not but notice a very great advancement in regard to the reclamation and cultivation of waste land, it was a matter of regret that throughout the whole of Ireland there was no competition for the prizes offered for drainage; and, in cottage building, that there were only three gentlemen came forward to place their experience at the service of the Society. The report continues:—"The first cottages we visited were those built by Mr A. Loftus Tottenham at Glenfarm, Co. Leitrim, in the province of Connaught. These cottages have been built upon the plan which took the prize given by the Duke of Abercorn, with the exception of one or two alterations in the details which appear in the plans furnished by Mr Tottenham, and which we shall notice. The houses are built with light coloured sandstone in broken ashlar, with punched dressings, overhanging eaves, and ornamental ridge tiles, and have a substantial and highly finished appearance. The plan having been

some time before the public, we need not describe further than to say that, with the improvements introduced by Mr Tottenham, it makes a very comfortable, warm cottage. These improvements are a porch 3 feet 6 inches deep, which adds very much to the warmth of the living room; a rising of the pitch of the roof 2 feet higher than is shewn on the published plan, which is a great improvement to the upstairs rooms, as well as to the external appearance of the houses, and an alteration in the plan of the upstairs back room, whereby, by throwing the closet at the head of the stairs into the room, he obtains a good, useful bedroom in each cottage, instead of a closet in each cottage and one over long, narrow bedroom between the two, but convertible to either. He gives a fireplace in the bedroom in each house, and a good cottage range, with oven in the kitchen, and he provides shelves and cupboards to a much greater extent than is usual, and thereby adds much to the comfort of the occupier. Taking the superior character of the workmanship and accommodation afforded, we thought at first that the price, £152, for which each pair of cottages was built, appeared low; but on careful inquiry we are satisfied that, convenience of material and other exceptional circumstances of the locality have enabled Mr Tottenham to do the work at the price named. Mr Tottenham has used foreign timber for the roofs and all external work—doors, windows, frames, and sashes, &c.; but he has, with great advantage and economy, utilized the fine timber of his estate in bedroom floors, partition studs, staircases, &c. We have much pleasure in awarding the gold medal for the province of Connaught to Mr Tottenham.

The next cottages we inspected were those built by Sir Henry Bruce, Bart., at Castle-



roche, in the county of Londonderry, in the province of Ulster. These cottages also present a very substantial, well-built appearance, and are built of the black trap rock of the district, in broken ashlar masonry for all front walls, and rubble masonry for back walls. The work has been done by contract, the contract price being £176 for two cottages and offices; but as this included some items not required by the conditions of the Society, it is estimated that the requirements of the Society were completed for £149, 5s. 6d. The accommodation afforded by these houses consists of kitchen and scullery, and one bedroom on ground floor and two bedrooms on upstairs floor. The great objection to these cottages is the want of attention to comfort in the arrangement of the kitchen, which, owing to the absence of provision against draughts, must be cold. There are no shelves or cupboards in the kitchen; but some shelves have been provided in the scullery. These were the only cottages we visited that provided a back entrance, and all such doors usually produce draughts; still, in this instance, owing to the arrangement of the scullery, we do not think they are liable to that objection. The kitchen floors are tiled, but the ground-floor bedroom is boarded. No kitchen range has been provided, and a fire-place upstairs is only given in one house, as from the peculiar manner in which the bedrooms interlap, it was found impossible to provide it in the second. The partitions between the houses are built of brick. We have much pleasure in awarding the gold medal for Ulster to Sir H. Bruce for these cottages.

The next cottages we visited were those built by Mr Mahony at Dromore, in the county of Kerry, in the province of Munster. These cottages, being built on Mr Tall's system of concrete work, present features of much interest. The plan adopted is much the same as that on which Mr Mahony's cottages were built last year, to which a prize was awarded. The accommodation afforded consists of a kitchen, with no back door or

scullery, two bedrooms on the ground floor, and one bedroom upstairs. These houses were built in one instance in a row of four houses continuous, and the other in a row of six houses, although not continuous, still with only a space of 3 feet between each block of two houses. A plan we think liable to many objections, and which we should not wish to see adopted unless compelled by exigences of situation. We think that in this instance also the arrangement of the kitchen is liable to the objection of being very cold and draughty, which is increased by the fact of its being open up to the roof, and that barely sufficient provision has been made for shelves, cupboards, &c., only one cupboard being given; and, owing to the nature of the wall, it being impossible for the tenant to put up shelves, as he cannot drive in nails or hold-fasts into concrete work. There being no back doors, and the houses being in rows, Mr Mahony has introduced Sheridan's sanitary trap sink into the back wall for getting rid of slops; an arrangement about which we do not express any opinion. The partitions between the kitchen and bedrooms, and also between the bedrooms, are formed of  $1\frac{1}{4}$  inch boards ploughed and tongued and placed on end. These boards have shrunk very much and the joints are rather open, and although neat when first put up, we do not think they make as good a partition as concrete or bricks, or lath and plaster, and the difference in cost is but slightly, if anything, in their favour. In the first four cottages we saw the slating is open, or three-quarter slating, there being a vacancy left in the rows between the slates equal to one-fourth the width of the slates, and effecting a saving in the quantity of slates used to nearly that amount. We cannot approve of this for roofs of dwelling houses, although every care has been taken by using cement under the covering slate and before the rendering to prevent indraft; still we think it a cold roof, as well as being liable to other objections. The whole roof has been lined under the rafters with  $\frac{1}{2}$  inch board joints covered with chamfered



slips. This gives a neat appearance to the roof, but we do not think it so warm as lath and plaster, and as the floor of the upstairs bedroom is only 2 feet from the spring of the roof, this is of much importance. The arrangements of the back yard are good. Moule's earth closets have been introduced. We think Mr Mahony is entitled to the gold medal for the province of Munster for the cottages built in 1872-3.

We award the Leinster challenge cup to Mr Tottenham for his cottages, as, for the reasons above stated, we consider them the most commodious and the best dwellings suitable for the occupation of agricultural la-

bourers or farm tradesmen. Considering the attention that is being just now devoted to sanitary measures, and the advantage of combining an economical accumulation of manure with healthful cleanliness, we would direct the attention of cottage builders to the importance of having a manure pit so placed as to receive all sewage from the house, along with all other refuse. In conclusion, we beg to report, for the information of the Council, that we found that Mr Mahony has adopted concrete work very largely on his estate, and is at the present time erecting several other dwellings for labourers and small farmers in this material.

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### *FARM PROSPECTS IN CUMBERLAND.*

OUR Cumberland correspondent writes:—

After an almost unparalleled period of drought, time of year considered, rain has at length fallen pretty heavily; and although the weather, at the time we write, is very cold for the latter part of May, still, when a good black rain has been vouchsafed, we naturally hope for warm weather—"a consummation devoutly to be wished" by all classes of the community. A walk over the farm reveals the fact that much progress has been made with out-door work since the advent of May. First of all, we may notice that the remnants of the oat crop have been put down, although the season, from beginning to end, was one of the longest on record. By the middle of April, the land had become so dry and hard, where the soil was composed of stiff clay, that sowing, or rather harrowing, was quite out of the question; and so farmers chose to wait for rain rather than deposit the grain in such an unsatisfactory seed-bed. Rain, however, never fell in sufficient quantities until after the middle of May; and so, weary of waiting, many were busily engaged in sowing previous to the rain, although the land was excessively dry and hard. Potatoes were got in in good season; and, speaking without statistics for our guidance, we should say that a larger area than usual has been planted. Turnip lands have been well

pulverized and trituated, and a better tilth obtained than was the case last year. Hundreds of acres have been thrown into drills ready for sowing; and now that rain has descended pretty freely, no time will be lost in sowing the seed. The area devoted to Swedes is very large this year, owing, in part, to the fine weather for the preparation of the land, and, in part, to a great want felt of a supply of roots for feeding purposes in the spring of the present year. Altogether we may say that the arrears of farm work, so conspicuous in February or March, have been well brought up; and the country, as regards field work, is in a very satisfactory condition. We now turn from the tillage of the soil to the aspect of the crops.

First, as to cereals. The all-important wheat crop falls far short of the mark, especially the autumn-planted parcels. There is a thinness in plant, and a yellow, unhealthy colour, which cannot fail to tell heavily on the produce of next harvest. Certainly, the season is now at the worst, for the crops are just "weaning," after which—on all good soils, where the pores have not been hermetically sealed by continued rains, followed up by parching winds—the plants will tiller and make out better than the most sanguine anticipate. Touching the spring-planted crops, they look better; indeed, we have seen



some too thickly planted to allow of safe maturity; brought about, doubtless, by an anxious desire on the part of the farmers to allow for the inferior kernels or immature starvelings in last year's produce, which many feared would never germinate. Oats and barley look well in general, and, notwithstanding the cold weather, the growth has been more rapid than could have been expected. We are sorry to notice that the wireworm has made sad ravages on all light, sandy soils, and on gravelly knolls; on nearly every class of land congenial to the habitation of this farmer's pest. Consolidating with a heavy roller is a very good remedy so far, and the application of artificial manures as a top-dressing, also does much to put the plants out of the way of the wireworm; but nothing has yet been found out to effectually stay its ravages. Potatoes are shewing very nicely through the soil.

We now turn to the pasture fields. Never do we remember them to have been so bare at the corresponding date in any year, and as cattle and sheep are all depending upon them for support, it may easily be imagined that neither cattle nor sheep are making very satisfactory progress. On early farms—those where the land is favourably situated, where the soil is in good heart, and where the herbage is of a superior kind—in ordinary years the first lot of cattle was usually ready for consignment to the butcher by the end of May; but this year matters have assumed a very different aspect. Little improvement is noticeable, and there will be a serious scarcity of well-finished animals in the shambles before the end of another month. Already prime beef has run up to 12s. 6d. per imperial stone in the western division of the country, and if this price has to be exceeded, we tremble to think of those who have limited

incomes. Dairy cattle, instead of improving in their produce, upon being turned upon the pastures are actually giving less milk than when they were fed in the stalls, and this is undoubtedly causing dairy produce to be dear. Many flockmasters are feeding their sheep pretty liberally with cake and corn, in order to forward their condition, but this becomes expensive when extensively carried out. As the sheep-shearing season approaches, we often hear the question asked, "What was wool to be?" For ourselves, we believe that prices will not worsen any, at least for some time; and, in support of this, we know of one extensive flockmaster who has been marketing a heavy flock of fat sheep lately, who has concluded one bargain at 1s. 11½d. per lb. for half-bred wool, and has just entered into another agreement to consign the remainder of his clip to the same firm at 2s. per lb. all through. This shews improvement, and may be taken as a fair criterion that the prices are in the way of advancement, for "a feather is sufficient to shew how the wind blows." The lambing season has been one of the most prosperous ever experienced. Doublets and triplets are more common than they are in nine seasons out of ten, and the mortality has been less than common, so that the lambs numerically will be quite 10 per cent. over average. The cold winds and bare commons have, however, been much against their well-being, so that perhaps at this date, individually the lambs are smaller. A few weeks of soft, balmy weather would, however, change their appearance.

In conclusion, we may state that agricultural prospects, on the whole, are by no means bright. The harvest cannot fail to be late; the hay crop must be a light one; and, unless the pastures improve rapidly, the summer, for graziers, is not likely to be prosperous.



## Random Notes.

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### IRISH AGRICULTURAL STATISTICS.

FROM the agricultural statistics of Ireland, for the year 1872, just issued, it appears that the acreage under culture last year, as compared with 1871, shews a general decrease in cereal crops—in wheat of 19,157 acres, oats 11,425 acres, barley 1966 acres, bere and rye 1580 acres. Potatoes decreased by 66,563 acres, mangold wurtzel 2892 acres, and cabbage 6444 acres. The crops which shew a decreased estimated average produce per acre in 1872, compared with 1871, are—Wheat, 0.6 cwt.; oats, 1.3 cwt.; barley, 0.9 cwt.; rye, 1.1 cwt.; potatoes, 0.8 ton; turnips, 1.6 ton; mangold wurtzel, 1.1 ton; and cabbage, 0.1 ton. The crops which give an increase in the estimated average acreable yield are—Bere, 0.1 cwt.; flag, 9.2 stones; and hay, 0.1 ton. In the estimated total produce of the cereal crops there is a diminution of 921,864 qr.; in wheat the decrease is 96,108 qr.; in oats, 756,358 qr.; in barley, 61,338 qr.; in bere, 3250 qr.; and in rye, 4806 qr. Turnips have decreased by 283,027 tons; potatoes by 987,814 tons. This large decrease is owing to a less extent of potatoes having been planted, and also to a much smaller yield than in the previous year. According to the returns, the produce of potatoes per acre has been for all Ireland, with the exception of the year 1861, the lowest average yield since those statistics were first taken in 1847. In the counties of Cork, Down, Kerry, Limerick, Waterford, and Wexford the yield was less than one-half of that in 1871, when the crop was considerably below the average. The unprecedented number of wet days during 1872 proved very injurious to the crops generally. Rain or snow fell on 253 days throughout the year, being sixty-three days above the average of the

ten years previous, and thirty-two days more than in 1862, which had the highest number of days on which rain or snow fell during the same period (ten years). The following crops show an increase in the total estimated produce:—Mangold wurtzel, 266 tons; cabbage, 57,587 tons; flax, 4170; and hay, 180,471 tons.

The number of emigrants who left the Irish ports in 1872 was 78,781, being an increase of 6777 compared with 1871. The number of males who emigrated was 46,741, being 4817 more than in the previous year; the females amounted to 32,040, being an increase of 1960 compared with 1871. From these figures it is evident that, whatever other advantages a conciliatory policy may possess, it does not induce the Irish people to remain at home.

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### A WORD ABOUT CHEESE FACTORIES.

In a recent article the *Rural New Yorker* gives some sensible advice upon the architecture of cheese factories. We hear, it says, that a number of cheese factories are to be erected during the coming year throughout the different States. Within a year or two, a few factories have been started in Maine, and considerable attention is now being directed to the dairy in that State. Much of the land in Maine is well adapted to grazing, and as farmers begin to learn something of the advantages of dairying and the associated system, we may expect to see this interest largely developed in the State.

In the erection of factories, too little regard is paid to architecture and ornamental surroundings. The early factories were rough, barn-like buildings, with no claims to beauty



of construction or taste in any department connected with the establishment. There was some excuse, perhaps, for this state of things among the factories first built. The system then was considered an experiment, and the least money possible was expended in the venture. Again, dairymen were not well informed in regard to the nature of milk, and the injurious influence of taints, and their development in the product manufactured. But now that these things are better understood, while the success of the factory system has demonstrated it to be a permanent institution of the country, more attention should be given to the architecture of buildings and the laying out of grounds attached thereto, making the whole more ornamental and as attractive as possible. As taste in this direction is developed, it exerts a larger influence for good among farmers and in neighbourhoods, than many at first thought are apt to imagine. We have conversed with farmers on this topic, and, while freely admitting that improvement in the character of milk delivered should be made, and greater pains taken to secure that end, they often fall back, in justification of their own filthy practices, by citing the condition of things at the factory and the general custom of patrons in the neighbourhood. "What would be the use," they say, "for one individual or even a half dozen inaugurating all these nice things in our own practice when our labours would be counteracted by the slovenly practices of others, or by the filthy odours about the factory premises." Some factory buildings are so constructed that it is impossible for the manager to keep them sweet and clean, and, however much he may wish to promote improvement among his patrons, the state of his own premises weakens the force of the truths he urges.

Many of the late factories have been erected

after old models, and are cheap and flimsy affairs—a disgrace to any neighbourhood that makes pretensions to intelligence and good taste. Generally, in such structures, a low grade of cheese is made; for the cheese-maker, like the factory, is second-class, and thus more is lost annually, in the aggregate, than would have paid for good buildings and neat surroundings, while no improvement is made or can be expected from the patrons.

In most instances, we think it would pay those contemplating building to employ a good architect. He should understand, of course, the general plan of the various rooms, and this could be obtained by visiting some first-class establishment; then let him make his draughts and assist with suggestions as to the grounds and their adornment. A comparatively small sum spent in this way is well laid out, and will often save from wretched mistakes and a useless waste of capital.

We shall never forget the impression received on visiting the Royal Dairy at the Queen's Farm, near Windsor. The ornamentation is most elaborate, while every provision is made for neatness and a sweet, healthful atmosphere. Such a structure has an elevating influence upon character, and makes one feel that dairy farming can be turned into a delightful occupation, second to no calling or profession. And although it may not be advisable to vie with the regal magnificence here displayed—of costly marble tables, gilded porcelain, painted tiles and such elegant ornamentation as that which affords pleasure to the Queen of Britain in her model dairy; still, we hold that the associated dairy farmers can do much to elevate their calling, and that if we are to produce the best butter and cheese to be found in the world, our manufactories must rise to be higher models of beauty and purity than those which too often disfigure the country.



## The Old Farmer's Note Book.

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I DID say that I should bury myself in my books, and that a certain individual whose name I shall not write on the present occasion "might pipe to his own." But I cannot resist quoting a bit of a speech from a Wesleyan paper some friend in London was kind enough to send me. It seems very appropriate at the present time, when labourers are striking against their Queen who is so kind to them, and embodies my own sentiments pretty well. This rev. gentleman—I have forgotten his name—at the last May Meetings said, "Working men were becoming aware of their importance; everywhere there were signs of coming mischief from the lower strata of society. The relations between capital and labour were assuming a very serious aspect; even the agricultural labourer had discovered the power of combination, and all these things, with the increasing knowledge of the working classes and their loud assertion of their rights—rights which in some cases had been too long ignored—rendered it of more importance than ever that education should be not only physical and intellectual, but also moral and religious. (Hear, hear.) As he thought of the evil counsels to which these men were exposed, he could not but quote the lines of Longfellow—

There is a mighty Samson in this land,  
Long without strength, and bound with bands of steel,  
Who may in some grim season raise his hand,  
And shake the pillars of our common weal,  
Until the temple of our liberties  
A shapeless mass of wreck and ruin lies.

Now more than ever, then, was there need to train up children in the knowledge of the Scriptures and in the fear of God, for those who had been taught to rest in confidence on Divine providence and grace, and who joined most earnestly in thanksgiving to God, would put most heart into their formula when called upon to sing 'God save the Queen.' "

I have been so terribly plagued with the rheumatism of late in the right shoulder that I find

it rather difficult to use the pen. I should have had something interesting for your readers had not this old enemy been down upon me like "an armed man." I have tried many "cures"—all kinds of doctor's stuffs for it—but they did not do me much good. I believe there is none better than the primitive one I once saw employed in a moorland shepherd's hut. I had been walking far and was rather fatigued as well as wet, for it was a bleak rainy day. While I was enjoying the shelter of the sheiling, or cottage, which, by the way, was very clean, the shepherd came in wet and weary and as if in pain. His good dame's first salute was, "Come on, John, and I'll iron you at once." "Iron you?" I asked, inquiringly at him. "Yes," he said, "there is nothing that does me so much good for the rheumatism as a warm iron run over a blanket put on the place affected." I have tried it and found it very effectual, except when the rheumatism is of a gouty tendency, as is my sad case now.

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The following I cull from my Note Book about harness and how to fit it to horses, and hope your readers will make a note of it, as I have done:—

The collar is the first thing of importance. That large thing that will admit a man's arm between it and the neck of the horse, is very unfit for a horse to work in. The collar should fit as neatly and closely to the neck as a pair of gloves. Then if it is soft and supple, as it should be, it will seldom gall the skin, if the hames are properly made and correctly adjusted. The hames should fit the collar well, and should not be too far apart at the top, as they often are. The staples which hold the sidetraps and traces are almost always attached too far up from the lower ends. A horse cannot draw well when the traces are attached near the top of his neck. If a horse is apt to gall near the top of his neck, take out the staples and put them lower in the hames. If the backbands are just right for a cart, they will be too short when ploughing, and will gall the backs of the horses.



Some horses have a very tender skin, and the harness will sometimes gall them cruelly, in defiance of all means to prevent it. But many times the true cause is attributable to a bad collar, bad harness, or to a good harness improperly fitted to the animal. When a harness or yoke of bows do not fit properly, and their skin is liable to be galled, bathe those parts before they are galled with cold water, until the outside skin appears quite soft, and then bathe those parts with a strong decoction of white oak bark. Let this be done every day and the skin will soon become much harder and tougher than it usually is. A little care in preventing an ill is far better than much labour and skill in curing it, or in endeavouring to obviate its injurious effects.

Well, never in all my life having seen a Derby, when an old friend, with whom I had been staying in the neighbourhood of Epsom for a few days, offered to drive me over and procure me a seat on the grand stand, I consented to go. As usual, all the world and his wife were there, and the children too, I suppose, but some of them did not appear to be enjoying themselves very much. Many of them had great anxiety depicted upon their countenances, fearful, evidently, of a coming calamity, or wistful about good fortune in the futurity of an hour or two. I did not care much for the bawling and the shouting of the vulgar-looking men with printed bands round their hats; they seemed, to my old spectacled eyes, a feature in the scene that could well be dispensed with. But what a grand sight the ladies were! I never saw anything like them before; and how happy all appeared to be—at luncheon time especially! And then the crowds scattered all over, and animating the landscape round about the course. Surely there never were such crowds before, such motley masses of men and women—of human wealth and worth, of human want and depravity—gathered together in such a small space under the open sky. And then what grand horses are to be seen round the enclosure. Rotten Row could shew no better. My eye rests long, and I am afraid somewhat covetously, upon some of them. A bell rings, and my worthy host tells me to direct my attention to the paddock, as the Derby competitors are coming out. There they are, too slim for my old notions, but very pretty to look upon. After some manœuvring, they all

get away, and in what seems to me almost the twinkling of an eye, I hear loud shouting that "Doncaster has won." For myself, I really saw nothing except a mixture of colours flitting past me like an arrow. I thought to myself, well, there does not seem much fun for all the money, but then having nothing invested, I had no interest beyond the sight. Having seen the Derby once, I do not care to see it again.

The fame of George Culley as a breeder of shorthorns has eclipsed all his other qualities in the eyes of the present generation, and quite obscured almost, the memory of his brother Matthew, who worked hand-in-hand with him. I have a jotting in my Note Book about Matthew which runs that, with a most active mind, he was of a grave and thoughtful disposition, and remarkably ingenious in contriving the best and most advantageous modes of arranging and performing the different species of labour, and of laying out fences, drains, roads, and making every kind of improvement, in which he had a particular enjoyment. He was also remarkably fertile in expedients to remedy any accident or unexpected misfortune that occasionally happened, and was ever ready to try new improvements, or to introduce new practices. Amongst many others, I may note that of water meadows of which he was much enamoured, and introduced them into the counties of Northumberland and Durham. George was the market man, and had a happy knack of gaining the esteem of the roughest of his customers, and he had many a rough one to deal with, I can tell you. Their devotion to stock did not wholly occupy their attention, as from the results it might well be thought to have done. They were always among the first to adopt and make experiments of any new mode of culture, new implements of husbandry, or new varieties of grain. Their great attention to minutiae, unremitting industry, and superior cultivation, not only raised a spirit of exertion and emulation in the surrounding neighbourhood, but gained them such celebrity as first-rate breeders and agriculturists, that they had pupils from various parts of the Island, from whom they received considerable premiums, besides being amply paid for their board and instruction. To all those acquirements they added strict economy, and the result was, they left landed property worth £8000. I should like to see more of the same stamp now-a-days.



I cannot resist in this place quoting a touching poetical tribute, as truthful as poetical, paid to the memory of George Culley.

If for his tomb, who wrote in blood his name,  
 Laurels claim a deathless fame,  
 And Sculpture's arts, with martial grace record  
 The fatal trophies of the warrior's sword ;  
 Nay, should not more unfading wreaths attend  
 His memory, not of man the foe, but friend ?  
 Whose blameless triumphs undefiled appear  
 Unstained by blood, unsullied by a tear ;  
 Who gave his useful time and active mind,  
 Still to promote the good of human kind ;  
 To improve, with scientific skill, the soil,  
 By his country's honourable toil,  
 And (worthier far than deeds of splendid strife) ;  
 Increase the comforts and the means of life.  
 Yes ! o'er the rural patriot's peaceful grave  
 Still shall the immortal wreaths of Virtue wave ;  
 While public praise and private grief combine  
 To grace with pure regret his sacred shrine ;  
 And for his honoured memory justly claim,  
 No undeserved, but high and honest Fame.

We are talking about a Board of Agriculture and the improvement of waste lands now. It is well nigh a hundred years since this was suggested by Lord Kames in his "Gentleman Farmer." He says: "Books are useful for advancing husbandry, otherwise this little treatise" [a wonderfully good book in its day and interesting at the present] "should not have seen the light. But books are far inferior to living instructors, who convey knowledge by practice as well as precept. We have a Board for Manufactures and Fisheries—a wise institution which has been attended with great success. Why not also a Board for Agriculture? Is agriculture a less useful art than those mentioned, or does it less require instruction? Hartlib, in his legacy, laments that no public director of husbandry had ever been established in England." Referring to Scotland especially, Lord Kames said: "A Board for Agriculture would among us have wonderful success in many important articles. Considering the quantity of waste land even in our best cultivated counties, it is not too sanguine to hope that our corn crops may be doubled. What a blessing this would be to Scotland, which, for many years, has been reduced to import great quantities? Our horses and horned cattle are far inferior to what may be produced by good management. Our sheep weigh not

above 10 lb. per qr., nor their wool above 2 lb. The soil by good culture would feed sheep to the weight of 24 lb. a qr., carrying from 6 to 10 lb. of wool, a valuable acquisition to the woollen-manufacture. Lambs, in several instances, have been advanced to 12s. a head, and wethers to 40s. These are but a specimen of the various improvements that might be perfected by such a Board." Private enterprize has brought farming up to a pitch beyond Lord Kames' ideas; but the necessity, in my opinion, for a Government Department of Agriculture still exists. With such a body, well appointed, much good would result to the agricultural interests. But neither of the two great parties in the state appear to care much for farmers, except at election times. The more's the pity!

In connexion with the Agricultural Children Labour Bill, I take this scrap, and I concur in its remarks both as to the healthy exercise of the children and the desirability of having good cottages with gardens attached for the agricultural labourers. Such accommodation, I am sure, would do much to allay the ill-feeling unfortunately prevailing at the present time. I relish hand-hoeing for keeping ground clean; I relish it more for the opportunity it gives to exercise the arms of young creatures, male and female, from ten upwards; give them only hoes of different sizes adapted to their strength. I venture to affirm that the strength of a man's arms who has been employed in hand-hoeing from his tender years will be far greater, perhaps a third, than if they never had been exercised until he was fully grown. This would be a great advantage in several employments, civil and military, as well as in agriculture. Add another advantage (and this I think one worthy of great consideration), persons accustomed from their tender years to keep ground clean *will contract an early aversion to weeds, and declare perpetual war against them.* My labourers have good kitchen gardens, where onions, leeks, cabbages, potatoes, and turnips are sown in drills. The hoe is constantly employed by the wives or their children. You may see a dirty face among them, but not a dirty garden.

The preference of payment of rent in kind or produce or to paying it in money, is one that has been long debated in the north. From a more than a century-old writer I find in my Note Book the



following jotting which, I think, puts the advantages of money rent very clearly. When rents are paid in kind the farmer, especially if his farm is small, has very little occasion to go without the bounds of his farm. He has few wants, and meets with few things that excite activity and industry. His principal care is to get his farm produce delivered, and when this is done he contents himself with the little that remains. When his crop falls short, though he may be disposed to activity by nature, yet having no money in his hand he cannot employ himself to any purpose, and therefore his spirits must sink, and inactivity and indolence become habitual. It can scarcely be supposed that he will leave the track that his fathers have walked in before him. The paying of rent in money produces a different effect. When this is the case the tenant must go to market and dispose of his crops to make up his rent. He has thereby opportunity to observe what passes in the world, and to converse with others. Hence his wants increase, which excite his industry, and the money that he has in hand gives him opportunity to exercise it. And though in an age of luxury these things may carry some persons too far and occasion some few bankruptcies, yet upon the whole they must prove spurs to activity, and be the means of improvement. Rents are still, as a rule, all or partly paid in produce in Scotland, although the farmers do not sell their grain as they were wont to do in the days of the writer we have quoted. I think it would be better to have it all money, the fluctuations in payment in some years being very great.

Of late years vigorous attempts have been made to induce farmers to cultivate flax in various parts of the United Kingdom, but, notwithstanding the glowing prospects of profits held out, farmers have been chary of entering upon its cultivation, and in Ireland, a country well adapted for it, the area sown is sensibly diminishing. In Scotland, more than a hundred years ago, the Rev. Adam Dickson, of Dunse, wrote:—"I am at a great loss to assign a reason for the small progress that the culture of this plant makes in Scotland. Premiums in different shapes have been given. They have been given to every farmer that raised 1 acre and upwards, for every acre that he raised a certain sum. They have been given to persons for purchasing a certain number of acres and manufacturing the produce of them. They have

been given to the persons that raised the greatest quantity of green lint upon the acre. It is no part of my province to attempt to assign the reasons that have prevented the culture of flax, notwithstanding all these encouragements. I must, however, observe that it is a very great disgrace upon our country, that, when encouragements were offered, men should be found who, instead of studying to deserve them by vigorous attempts to promote the culture of this plant, should only contrive how they might gain them by fraud. It is certain that certificates were produced of crops of lint of value far superior to anything that has been mentioned of lucern, and I may almost venture to say, of twice the value of the land upon which it was raised." I am afraid that it is the fear of such exaggeration by promoters of flax growth in our own day which deters agriculturists from meddling with it. I think, with proper cultivation, however, it might be made to yield a good return on some lands.

There is a system of feeding fowls in France which I have heard of, and which, it is said, is followed by no disastrous consequences when carried out by skilful operators. In the hands of those not up in the business it hurts the throats of the birds. This instrument of torture, I cannot help calling it, is like a funnel for pouring spirits into a bottle, only that the pipe is cut diagonally. In order to prevent mishaps to the thrapple, and still further to insure against mischance an india-rubber ring is placed round the aperture. The bowl of the funnel is filled with a fluid consisting of barley-meal mixed with milk and water. Here is the *modus operandi* of cramming described by a French writer:—"When everything is ready the animal is taken by the wings, near the shoulders, and is placed between the knees of the operator, with its head placed forward, so that it is neither hurt nor choked. It makes some contortions at first, but afterwards becomes accustomed to the position. When it is quite calm, the forefinger of the right hand is passed into the ring of the funnel; the head of the chicken is taken into the left hand, and, stretching the neck of the bird well out, the operator opens the beak with his right hand, which still carries the funnel. When the beak is conveniently open the left hand keeps it so for an instant, during which the whole pipe of the feeding funnel is introduced into the throat, taking care not to hurt the in-



terior of the gullet. The left hand holds all easily, the head of the chicken being held by the palm of the hand and the last three fingers, the funnel being sustained by the thumb and forefinger. The food is then taken, and the funnel filled with it, but not to overflowing, the bird's neck being still kept conveniently stretched out. The spoon is put back with which the food has been taken up, and with the right hand the crop of the chicken is held up till it is felt to be full, the passage of the liquid into the crop being helped by sundry manipulations." To my old-fashioned notion this seems a very cruel process; so much so, indeed, that if there be a society for the prevention of cruelty to animals in France they ought to interfere on behalf of the poor fowls. Besides, I do not think that poultry so fed can be so nicely flavoured or so healthy to eat as pullets brought up naturally on proper food.

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I come now to a good scrap in my Note Book. It is by no means new, but it is quite true, and I wish that its truth would be more regarded than it is. It is about the feeding of cattle, which is not half so well attended to as it ought to be. Of course, in this country we have the best feeders in the world, but then they are only thinly distributed throughout the land, and the majority of graziers, we are afraid, are very sparing with the food of their stock during winter.

There is no economy in letting an animal get lean; but some people seem to think it is all gain if they only save a little hay by the operation. I have heard people argue that they could make it up on grass, not thinking that every pound lost is *lost*, and has got to be replaced, and it takes a much longer time to replace than to lose it. Had it not been lost the animal would have gone on improving day by day. One thing cattle need they do not get, is plenty of salt; they ought to have some every day, but I fear many do not get it once a month.

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As the time of the swarming of bees is approaching, I shall quote here a very good suggestion from one of the largest bee keepers in America, where they possess more enthusiastic apiarians than we do in this country. Mr Wilson, Marcellus, New York, says:—

A sure way to prevent bees from going to the

woods, when they come out and alight, is to get a pail half full of cold water from the well; take a broom-brush and dip it in the water, and throw it over the bees, and it will come down on them like fine rain; then hive them the usual way, and sprinkle them while going in, and sprinkle the ground around the hive, to cool the air; in fifteen or twenty minutes do it again, and continue it until the day is cooler; keep the hive in the shade. There is no need of having any bees go to the woods—not at all. I had over forty swarms last summer, and saved all by sprinkling them. During the thirty-five years that I have kept bees. I have never had a swarm come out and go to the woods without alighting first; and I am safe in saying I have hived a thousand swarms. Bees sometimes come out undiscovered, and after a while start for the woods, and are seen on the second start. If apiarians in this country keep Mr Wilson's hint in mind, I am sure it will save them time and money.

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In lifting up a provincial newspaper the other day, I noticed therein the death of an old friend, one who did much to promote a love of chemistry and of rural industry among the young—Mr Alexander M'Ivor, of Glasgow. Mr M'Ivor belonged to the far north, and in early years stood at the cabinet-maker's bench, but by steady perseverance he wrought himself up to a position in the Anderson University, Glasgow. His prelections there were much appreciated. Thereafter he went to Leeds, and his lectures on Natural Philosophy were a subject of great attraction to the numerous pupils at the Mechanics' Institution there. His lessons in the field with the theodolite were highly instructive, being made plain to all who took an interest in measurement. Dr Lyon Playfair, recognizing his ability as a chemist, engaged him as his assistant in the Edinburgh University, where he displayed much originality of thought and capability in manipulation. Latterly Mr M'Ivor devoted himself principally to expounding with a graceful pen in the daily press the broad views he held about technical subjects. In agricultural matters especially he took a warm interest, and "The Old Farmer" has benefited by many of his theoretical hints. Following in his footsteps and "bettering by his instruction," his eldest son, I am glad to hear, is rapidly becoming one of the most practical agricultural chemists of the day. He is now manager at the,



Alum and Ammonia Works, at Bow Common, London.

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When I was last up in London I was pained to observe a large number of horses falling upon the streets—Ludgate Hill, Holborn, and elsewhere. A humane friend of mine, a large dealer in agricultural stock, Mr Burrell, called upon me the other day and shewed me the model of a cart for the distribution of sand upon the streets. It is very simple in construction, and easy to work. If it were adopted by the authorities, or something like it, I am sure it

would save thousands of pounds sterling worth of horse flesh every year. The Society for the Prevention of Cruelty to Animals should urge the use of such a contrivance, and they might also endeavour to impress upon horse-owners and farriers the propriety of using a different construction of shoe to that now generally in use.

I am afraid I have about exhausted your readers' patience this month, and as I carefully wish to avoid anything so rude, I shall now stop, else perhaps they will wish that I had the rheumatism again, and from that I heartily desire to be exempt henceforth and for ever.



## The Garden.

### CLEMATISES.

THERE is no better plant for the flower garden than the different varieties of Clematis offered in commerce. It will do to train up a wall, and cover with its azure, or lilac, or white flowers almost every vestige of its own foliage. It will do to cover a bed in the flower garden, by putting in a few stakes to keep the shoots from an absolute state of trailing. It will do to make a greenhouse gay, if well grown. In this way we have seen great masses of bloom covering a space quite 5 feet across. Nothing could be more showy, and on that account any notes upon the varieties will be read with interest.

The following description of the under-named new Clematises is from Hooper & Co.'s catalogue :—

*Clematis Thomas Moore* (Jackman).—This is one of the finest of the Woking hybrids, being of a bold character, and of a vigorous habit. The leaves are large and pinnatisect, with ovate leaflets which are acuminate. The flowers have from four to six sepals, and are very large, amongst the largest indeed of the purple-flowered sorts, being often as much as from 8 or 9 inches across, of a deep rich puce violet, and having a very prominent tuft of white stamens, which give to it something the appearance of a giant Passion Flower. The buds are long, dull dark purple, and erect, and the sepals when expanded are rather elliptic than ovate. The flowers are successional and freely produced, though not in the copious masses of those of the true Jackmanni type. Awarded a first-class certificate at South Kensington, in Aug. 1867, and figured in the *Florist and Pomologist*, 1869, p. 265.

*C. Mrs James Bateman* (Jackman).—First-class certificate, Royal Horticultural Society. While not producing the profuse continuous mass of flowers characteristic of the Jackmanni type, this variety is, nevertheless, a free and successional bloomer, continuing throughout the season to yield an abundant crop of its showy blossoms. It originated from the Jackmanni group once more crossed with lanuginosa, and produces bold ternate leaves, with large broad cordate acuminate leaflets, the blossom buds being erect and woolly. The flowers have, for the most part, six sepals, and when they first open are of a deep reddish lilac, this colour passing off to a pale lavender as the flowers become older; the tuft of stamens is conspicuous, the anthers being slightly tinted with reddish lilac.

*C. Viticella rubra grandiflora* (Jackman).—This is one of the most beautiful of the Viticella forms, and gained a first-class certificate when exhibited at South Kensington, in July 1868. The leaves are pinnately divided, or sometimes alternate, the leaflets being sometimes entire and ovate, sometimes divided into three segments, which fully equal the simpler leaflets in size. The flowers, which are abundant and successional, measure about 3 inches across, and are composed of from four to six sepals, of a rich bright claret crimson, with green stamens. This charming variety, which has much the habit of *C. Viticella venosa*, and like it is a most valuable acquisition, the profusion of blossoms rendering it exceedingly ornamental, while the distinctness of its colour makes it most effective for contrast, is the nearest approach to a crimson Clematis



yet obtained, and was raised in the Woking Nursery.

*C. Alexandra* (Jackman).—First-class certificate, Royal Horticultural Society. This belongs to the race of free-blooming varieties of the Viticella or Jackmanni group, and it is of a remarkably showy and ornamental character. The leaves vary from simply cordate and toothed, to ternate or pinnatisect, with

*C. velutina purpurea* (Jackman).—This also is one of the Woking hybrids, and having the successional and profuse flowering character which marks the original Jackmanni group, it is a very desirable sort, as while free blooming in habit, it is the deepest coloured of all the varieties of this type. The leaves are bold in character, ternate or pinnatisect, with cordate ovate leaflets. The



*Clematis Sophie* fl. pl. (New variety).

the lateral leaflets ovate and the terminal one cordate. The flowers are large, of a reddish violet, with broad overlapping sepals, and in the centre is a tuft of greenish white stamens. The unopened buds are of a greenish purple hue. It is one of the continuous blooming sorts and being of a vigorous habit of growth, is a most desirable acquisition for decorative purposes.

flowers are large, from 4 to 6 inches across, consisting of from four to six sepals, but having a tendency to be four-sepaled; the colour is a very rich blackish mulberry purple, and the stamens are greenish. This variety was shewn at South Kensington, in June 1866. and was then awarded a first-class certificate, and deservedly so, on account of the beauty of its flowers.



## EARTHING-UP CELERY.

CELERY requires a little more than the ordinary care given to general vegetable cultivation, because, in the first place, we want it good and crisp, and in the next place, because it is somewhat tender, and shows an indisposition to withstand the continued cold and wet of late autumn and winter. To obtain crisp Celery, cultivation must be decided upon of the highest stimulating kind. It wants good soil and plenty of manure, and plenty of water as the plant increases in strength. The earthing of it up must be done with care, to prevent if possible worms and slugs from making headquarters between the leaves. The pressing them together with the hand, so as to impact

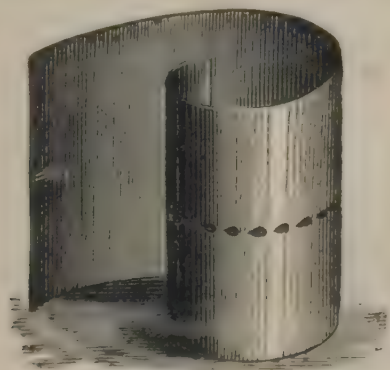


Fig. 1.—Wortley's Celery Collar.

them together as firmly as possible, is one object, and the putting the soil round their stems firmly, is another. We don't approve of that system of earthing-up shewn at fig. 3, because, even if it were practicable to keep the soil in this sloping potato-pit fashion, the plants would be starved for want of a proper water supply. Neither do we approve of that system shewn at fig. 4, where the earth is made to keep pace with not only stems but leaves. This is apt to encourage a state of decay which brings with it no end of slugs and worms, and the permanent life of the plant is consequently destroyed. The plan shewn at fig. 2 is the wisest to follow, because the soil in body is made to keep pace with stem growth, and the rosette of leaves that are crowded together is only held

in check by the little mounds raised about them. Moreover, the cavity is well disposed to take and hold water in quantity, and supply the needs of the plants in the rows. In any case, the earthing-up should be firm, nearly as firm as hands can make it. There is no use for beating with the spade, or even treading with the foot, which is always attended with more or less of unequal pressure, but merely pressing firmly with the hands, and firming all the earth upon a common principle.

We append an illustration, fig. 1, of a plan said to be an efficient one for protecting the plants as they are earthed-up. We question much the propriety of its goodness after the growth has been completed, as the brown paper will decay, and anything that decays in contact with Celery-stalks is not productive of good to the Celery itself. That it will be useful in summer there cannot be a doubt, and if one could take it away after the Celery is matured, it would be right enough. We give it, however, space here, because of the great number of gardeners and others interested in the culture of Celery speaking well of it, and we also append, for the benefit of our numerous readers, the seller's description of the contrivance and how to apply it.

"In introducing Wortley's Celery Collars, we may state they are intended as a substitute for the various unhandy contrivances that are frequently resorted to for protecting Celery before earthing-up; and being made of very strong brown paper, they will last for months in the ground, and may afterwards be incorporated with the soil. They prevent the Celery from coming in contact with the earth, keep it clean, lessen its liability to rot, protect it from slugs, and secure a better blanched and more compact head, containing a much greater eatable bulk. They are easily and expeditiously fixed, and greatly facilitate the earthing-up process. They are made in three



sizes, to suit different cultivators, and also to fit plants of any size and thickness. The collars will yield to the plant as it increases in thickness, by the hook pulling through into the next hole; but it will be found, in

into the hole that secures the proper degree of tightness. In hooking, bring the hook end of the collar over the holes, not under them. A collar should be put on each time the plants are soiled up, and about  $\frac{1}{2}$  an

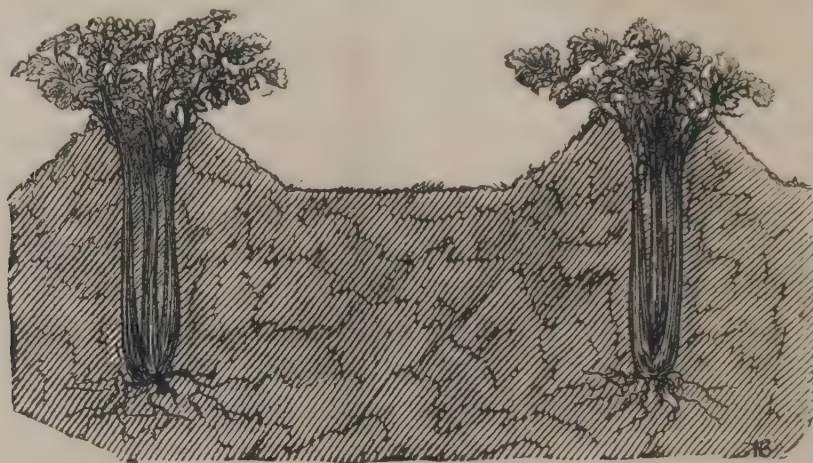


Fig. 2.—Right way of Earthing-up Celery.

practice, that the paper resists considerable distention, keeps the leaf stalks firmly in their places, and secures a clean, compact, and well-blanching sample, that more than repays the small outlay in collars. Lastly, they are sold so exceedingly cheap as to

inch should be left above the soil for the next collar to lap over. It is recommended to use the narrow-sized collars for the first earthing, and care should be taken not to hook them so tightly as those put on later in the season."



Fig. 3.—Wrong way of Earthing-up Celery.

come within the easy reach of every grower of Celery.

*Instructions.*—While one man gathers the leaves up firmly in his hands, another slips the collar on, taking care to slip the hook

In addition to what we have said on Celery earthing-up and cultivation, the appended remarks of Messrs Sutton are well worthy of general attention.

"This crop cannot be subjected to rough



and ready methods with impunity ; it must have some amount of care, and in good gardens a very considerable amount of care is attention, it never acquires its full degree of vigour, and must be in the end of poorer quality than a plantation of the same sort

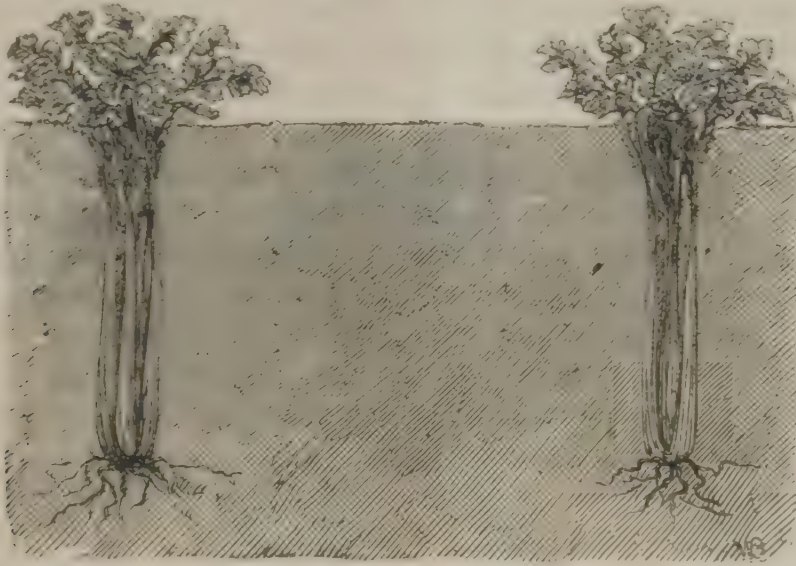


Fig. 4.—Wrong way of Earthing-up Celery.

bestowed upon it. A good general advice may be given to all classes of cultivators. To take care never to sow the seed a day too



Fig. 5.—Suttons' Sulham Prize Pink Celery.

soon for the requirements and conveniences of the garden, for if Celery is allowed to grow in seed pans and frames for want of

and age that never received a check from first to last. Better sow rather late, and then keep it going by vigilant and liberal cultivation, than make an early start that cannot be followed up with earnestness. Sow a small pinch of seed of two or three of the smaller pink and white sorts, for the earliest supply in February, in a mild hot-bed or in an early vinery. As soon as the plants are large enough to handle, prick them out 3 inches apart on a nice, mellow bed of rich soil on a half spent hot-bed ; give them plenty of light, with free ventilation as weather allows, and moderate supplies of water. Sow again in March, and prick out as before ; but if there is no hot-bed available, a well-prepared bed in a frame in a sunny position will answer ; or if the season be somewhat advanced, a bed of rotten manure 2 or 3 inches deep on a piece of hard ground will answer very well, if the plants are kept regularly watered. From this bed they will lift with nice roots for planting-out, scarcely feeling the removal at all.

“ In April and May, Celery seed may be sown without any protective agency, and if well managed, will make useful crops for soups. In preparing trenches for Celery, it is of no use to stint the manure ; and it is well,



if possible, to make the plantation near a supply of water, to lessen the labour of carrying, as the crop must be liberally watered in dry weather if a fine quality of produce is desired. It is usual to plant Celery after Peas, and the practice is good for the ground as well as the plant. During the progress of the crop, a dressing of fine earth may be occasionally thrown into the trenches to encourage the free spread of the roots; but systematic earthing-up should not be commenced until the plant is pretty well full grown, for the process checks growth very materially. The earthing-up should be done in dry weather, and great care must be taken to keep the mould out of the hearts of the plants. The late crops must, whether full

grown or not, be well earthed-up in time to protect them from frost; and in low-lying districts it is advisable to take up the best Celery in time to save it from frost, and store it in dry earth in a shed. For a gentleman's table, Celery should be of moderate size, very neat and wax-like in texture, and Sulham Prize Pink (fig. 5) and Solid White are to be preferred. When extra large, it often happens that it has but that one quality, being coarse in texture, hollow, watery, and flavourless. The gigantic Celery to be seen at exhibitions, is, in a majority of instances, worthless, except to flavour soup, and for that purpose it may be grown with a tithe of the trouble required to produce sticks of the stoutness of gate-posts."

### CHOICE VEGETABLES.

#### SUTTONS' EARLY FORTYFOLD CUCUMBER.

THIS variety, hitherto known to botanists as *Cucumis Anguria*, was introduced in season 1871. It is perfectly hardy, but the seed should be sown under glass, and transplanted into the open ground in May and June. At first it should be protected with a hand-light, but may afterwards be cultivated as an ordinary Ridge Cucumber. Its great merit is its extraordinary productiveness and value for pickling or salads. To market gardeners it will be found invaluable, and is a great acquisition for villa gardens on account of its easy culture and quick growth.

The following remarks on Cucumber cultivation generally, from the Messrs Suttons' *Guide*, will not be inapplicable here:

There are no mysteries in Cucumber culture, but when the first principles have been mastered, the secret of success will be unfailing vigilance, for neglect or careless treatment tells with speedy and decisive effect to the injury of the crop. To grow summer

Cucumbers is an easy matter, and as the fruit is most in request during the summer season, the least troublesome culture is really of most



Suttons' Early Fortyfold Cucumber.

general importance. The seed should be sown in heat in March, and the plants should be grown near the light, and be planted out



when strong enough, on a well-prepared hot-bed, one plant to a light. With attention in watering and air-giving, they will grow rapidly, and soon begin to bear. It is well to avoid shading, and if air be given freely it will not be needful. The vines should not be so severely pinched and pruned as is the general practice, for good fruit cannot be produced until a good plant with plenty of large healthy leaves has been secured. The rule for stopping is simple enough: it consists in pinching out the points of the side shoots, leaving one leaf in advance of the fruit; but the cultivator must not allow all the fruits that shew to remain, for there will always be more presented than the plants can mature. Good Cucumbers may also be grown on ridges with the aid of a good bed of fermenting dung, covered with a coat of good light soil. There should be no stopping practised with Ridge Cucumbers, and only ridge sorts should be grown, for the exhibition kinds are not hardy enough for ridges.

Another good plan of obtaining a supply of summer Cucumbers is to plant out in large boxes, filled with good turfy soil, or in a bed made up for the purpose with a good mass of drainage material for a foundation, in a sunny greenhouse after the bedding plants are cleared out in the latter part of May, and train the vines up the roof. They soon present a beautiful appearance, and bear abundantly until the house is again wanted for the bedding plants in October.

For winter culture, a suitable house is required, with good heating apparatus, and evaporating pans to create atmospheric moisture. The plants should be raised from seeds sown in August and September, and when trained out, must be kept thin upon the trellis to secure an abundant admission of light. The winter crop must always be restricted, for if allowed to bear too freely the plants will not last long. It is unnecessary to fertilize the flowers of the Cucumber like those of the Vegetable Marrow.

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### PLANT STOVES.

THERE are many forms of hothouses which may be employed successfully for the growth of Stove Plants, such as span-roofs, half-spans, and lean-to houses, but for the growth of specimen plants the span-roofed house is undoubtedly the best, as it affords the plants more light and air, at the same time that it may be made to form an ornament in a garden where no other style of house could be tolerated. Half span-roofed houses are very useful for growing small plants, for furnishing the side tables in the specimen house; and the lean-to has its special advantages, for the back wall will accommodate many plants, which, if trained against it, will display their beauties to greater advantage. In such houses, moreover, we may produce abundance of blooms for cut-

ting, which will spare the choicer specimens from being mutilated or disfigured; and without some such structure, facilities of this kind could not be enjoyed.

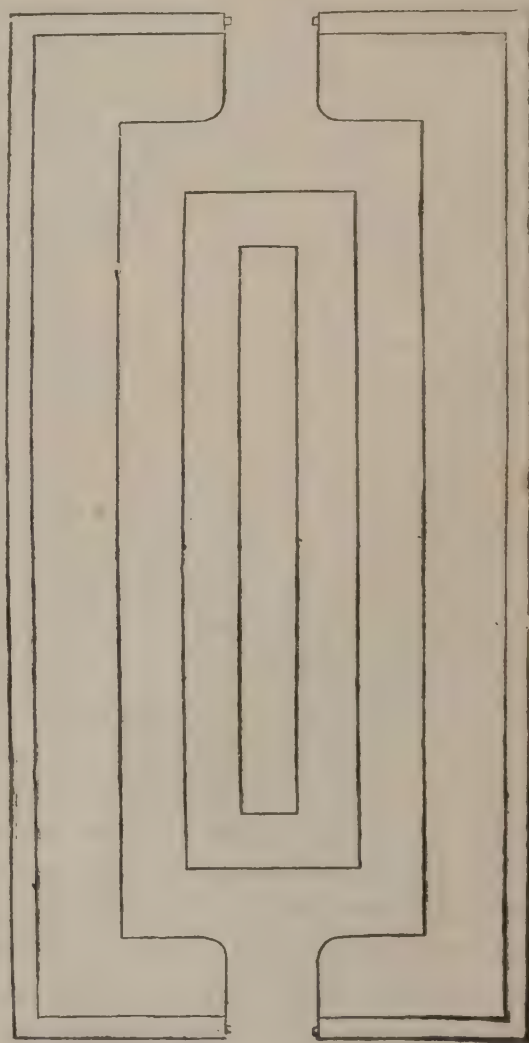
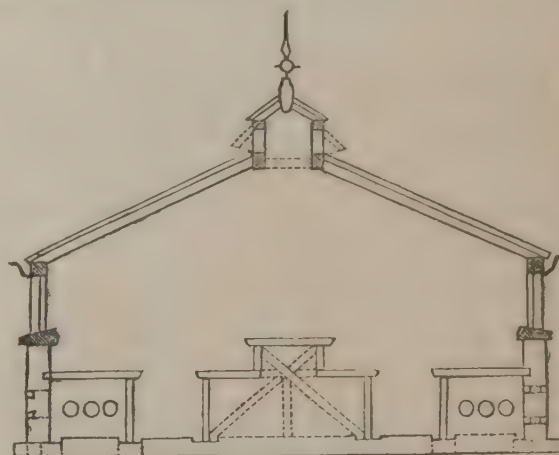
We have given a ground plan and end section of a span-roofed house, suitable for the cultivation of specimen Stove Plants. It is 50 feet long, 20 feet wide, and 12 feet high, and contains a table next the outer wall, on each side and end, a walk 3 feet wide, and a centre table, which has a second table, 1 foot higher, running down its middle; these tables should be of slate, with iron supports, while the floor and path are best concreted with good Portland cement, mixed with sand, which makes a substantial and comfortable floor and pathway, and is easily kept clean, harbours no insects, and stands



a great amount of wear and tear. The double or folding doors are the best for such structures, because, if large plants have to be moved in and out, they afford greater space than the doors in ordinary use. While speaking of doors, it may be remarked that they should always be fixed so as to open inwards, which is more convenient, and, besides, the glass is not so liable to be broken through the violence of the wind. The side lights, or sashes, are 2 feet in height, and need not be made to open, but instead thereof, some large iron or slate ventilators should be built in the brickwork beneath them, opposite the hot-water pipes, as shewn in the plan; by this means, the air is prevented from blowing upon the plants in a raw or cold state. We also recommend that large drain pipes be laid in the ground, passing from the outside under the foundation to the inside of the house, and rising under the heating pipes, by which means fresh sweet air may be admitted, even in severe weather if necessary, without detriment to the plants, which would not be the case unless it were warmed, as it would be in this case by rising amongst the hot pipes. The lantern-roof shewn in the figure we consider the very best style of top ventilation for a Stove, because it does not let the cold air in directly upon the plants.

Some kinds of Stove Plants thrive much best with a little bottom heat; we allude to such as *Ixoras*, *Dipladenias*, &c., which must be grown in another house in which the centre stages, shewn in the foregoing plan, must be replaced by a brick pit, in which the bottom heat can be supplied either by means of heated pipes, or a hot-water tank, or by its being filled with a body of tan or other fermenting material. Those plants which require this treatment must be removed from the growing house when in bloom, and, if in summer, may be brought into the stove or conservatory. The lantern-roofed house may be objected to by some, on account of the additional expense of construction; if so, we must refer them to the ordinary span-roofed

house, with sliding sashes. We must, however, add, in reference to this matter, that when valuable plants are being provided for, it is true economy to have the best pos-



Ground Plan and Section of Stove House.

sible accommodation provided at first, even though it may lead to a few pounds of additional expenditure.—*B. S. Williams, Victoria and Paradise Nursery, Upper Holloway.*



## NEW AND RARE PLANTS.

## MARANTA MAKOYANA.

FOR handsome-looking plants we are greatly indebted to the family of Marantas. They give quite a tropical character to any collection, and they are so varied in the colour of their leaves, and withal so fair in form, that no stove conservatory can be considered complete without one or more of the members standing up in contrast by pendant Crotons, arching Dracænas, stately Palms, and handsome fronded Ferns. The subject of our present remarks is from Mr Bull's collection of novelties, and a most excellent representation is that portrayed of the plant itself as we have seen it in Mr Bull's stoves. We notice it particularly for its dwarf habit, being much dwarfer than either of the well-known standard plants, *M. Veitchii* and *M. Lindenii*. Its markings are most decided, and at once attract the notice of the general spectator. Mr Bull thus describes it:—

“A lovely dwarf-growing stove perennial, belonging to the front rank of plants with ornamental foliage. The leaf-stalks are slender, erect, of a dull reddish purple, and support an ovate blade, somewhat unequal-sized, about 6 inches long and  $4\frac{1}{2}$  inches broad, most charmingly coloured. The margin and the oblong markings are of a very dark bottle-green colour, while the whole intervening space is a semi-transparent, cream-coloured, or of a greenish straw-colour, and traversed by the veins, which form narrow divergent dark-green lines, between which the pallid surface appears as if minutely striate, but which, when closely examined, is found to be barred transversely with minute green lines, producing, under a magnifying glass, the appearance of being cancellate, like the *Ouvirandra*. This pale centre of the leaf, on each side the midrib, is ornamented by oblong, often stipitate, blotches, of a deep

full green, and from 1 to 2 inches long, the larger and smaller markings frequently alternating. The under surface is a wine-red, deeper opposite the darker markings of the upper surface. It may be described generally as a miniature of such plants as *M. Veitchii* and *M. Lindenii*, but is even more beautiful than these fine kinds.”

## DIEFFENBACHIA NOBILIS.

The above excellent representation of *Dieffenbachia nobilis* is from Mr Bull. The excellence of the plant itself is such as to command for it the deepest attention. It is noble-looking, graceful in the arching character of its leaves, and the spotting is so decided and so beautiful as to render it one indeed of the first ornamental plants in any miscellaneous collection. Grown under the influence of a little bottom heat this plant goes away with vigour. It is always best kept in a young state so as the leaves may completely clothe the stem. When it grows older it is apt to become naked as a giant Pandanad, and although by no means unsightly, is still sufficiently leggy to displease the hypercritical eye. Mr Bull thus describes it in his new catalogue:—

“An introduction from South America, of a remarkably bold and effective character. The plant is stocky in habit, and well set with spreading leaves. The leaf-stalks are about a foot long, thick and channelled, margined nearly up to the blade, very pale green, mottled transversely with brighter green. The blades are oblong-ovate, subcordate, 20 inches long and 9 inches across, ending in a short abruptly acuminate point; they are of a deep rich green, marked over the central portion to within about an inch of the margin, with largish angular, irregular, and variously confluent white spots, which contrast strongly with the colour of the margin and interven-



ing portions. Altogether a strikingly handsome plant of its group." have many admirers. Unfortunately the single kinds, or kinds botanically perfect,



Fig. 1.—*Maranta Makoyana*.

**HIBISCUS (ROSA SINENSIS) FULGIDUS.**

The flowers of many of the Hibiscus tribe are unusually conspicuous. What with the brilliancy of the colours of many of them and the large size of the individual flower, they

only last a day in bloom, but the plants have the power of sending flowers forth day after day, so that the loss is not in a measure felt. Few people but would grow one or more Hibiscus if they could only keep them within



bounds. They will grow into rampant habit, and must be kept under with the pruning knife, else few houses in the country, reared for growing miscellaneous plants, would in

Islands, is single too. It is shining, as its name bears, and shines with a lustre of brilliancy which is truly captivating. Any one can grow the plant by giving it ordinary pot



Fig. 2.—*Dieffenbachia nobilis*.

time hold them. All the Chinese Rose varieties are very beautiful; many of them, indeed most of them, are single, and this one under review at present, from the South Sea

culture and a little winter warmth. The summer temperature of these islands will be sufficient for it. Mr Bull thus describes it:—"This magnificent variety, which was ob-



tained from the South Sea Islands, is remarkable alike for the size, colour, and marking of its brilliant flowers. The leaves are broadly ovate, with coarsely serrated margins.

It is most valued towards the base, where on each petal is an oblong blotch of deep crimson. Growing a bluish-rayed star in the centre. One of the finest varieties yet introduced.



FIG. 3. Hibiscus rosa-sinensis.

The flowers are of very large size (5 inches in diameter), composed of fine, broad, rounded, and beautifully undulated petals, of an intense carmine scarlet, paler and some-

times (rosa sinensis) variegated.

A double Hibiscus has the mark over its single fellows of having more persistent flowers—flowers that endure longer than a



of old flowers is so great. The length of the stem the petals are very many and very large and very broad and very many. In some they are very numerous.



Fig. 1. Rose, *Rosa rugosa*, Thunberg.



plants, although they don't please us so well as such selected single ones as the South Sea Island *fulgidus*—a splendid companion of the one now illustrated. The deep crimson petaloid stamens are exceedingly showy, and so, of course, is the exterior corolla, which is shaded darker in colour toward the base. Both the *fulgidus* and the *puniceus* are welcome additions to a most attractive family of plants. As we have already said, the plants admit of easy rough and ready cultivation, and surely are all the better fitted for villa gardeners and others who have not time to give up to attend to difficult plants. Mr Bull thus describes it :—

“A very attractive stove plant, of a remarkably dense and close-growing habit, as compared with others of this well-known showy species. The leaves are shortly and broadly ovate, of a deep green colour, with an irregularly-toothed margin. The flowers are double, remarkably neat and compact; they measure about 3 inches across, and the wavy petaline bodies, which form the close centre are about 2 inches in depth, and have a very elegantly-crisped appearance. The colour is a bright dense crimson, so that the blossoms are necessarily very attractive. It is one of the numerous importations from the South Sea Islands.”



## Arboriculture.

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### *PRUNING AND TRANSPLANTING EVERGREENS.*

FEW persons, when transplanting evergreens, appear to know that a little or considerable pruning is either beneficial or necessary for the health and good appearance of the trees. It is very seldom that I ever transplant an evergreen tree or shrub, large or small, which does not require pruning, more or less. In setting out small *Arbor Vitæ*s, say those 10 to 15 inches high, I cut back side branches and leading shoots one-third, and this can be done very rapidly, by grasping the entire top in one hand, then, with the other, shear or cut with one stroke of the pruning knife. If the plants are smaller, say 6 to 10 inches high, a half dozen or more can be taken in hand at one time, and all be pruned with one stroke. This cutting back of the tops is very beneficial to young plants from the seed-beds. The roots are always more or less injured, and lessening of the amount of top will often be the means of saving life. In removing larger trees, and of different kinds, a shortening of the branches will not only assist in saving the life of the plants, but aid in giving them a good symmetrical form. Evergreens grown in nursery rows are very likely to be distorted in form; the branches on the two sides adjoining the neighbouring plants in the row will be much shorter and less in number than on the other two sides; consequently, the shortening of the longer ones gives symmetry and uniformity of appearance. It is a great mistake to suppose, as many persons do, that evergreens require no pruning. They may not need as much as deciduous trees; still, a little at the time of transplanting, and enough afterwards to keep them in proper shape, is certainly beneficial, if not

positively necessary. If trees that have been set in nursery rows or hedges fail to make stocky specimens, the leading shoots should be annually shortened, until the requisite form is secured.

I have always found it a difficult matter to make workmen understand the importance of protecting the roots of plants that were being transplanted in windy weather. Small, delicate plants are soon destroyed if exposed to the hot sun and drying winds. Large trees will also be greatly injured if exposed only for an hour, and many a fine, healthy specimen has been destroyed by exposure, while a hole was being dug for its reception. I have seen trees scattered about over a field in the morning, and there left exposed to drying winds, until planted the same or the following day. If the trees died, or failed to make a good growth, the nurseryman, soil, or season was blamed, but never a word said about carelessness at the time of transplanting. One morning, last spring, I passed a gentleman's place where one of our would-be-great landscape gardeners was superintending the planting of a choice lot of evergreen and other trees, which had just arrived from a well-known nursery. Not a hole had been dug, or other preparations for planting made, but the trees were scattered over the place, each specimen thrown down near where it was to be planted, not a root covered, or even sprinkled with water, although the wind was blowing almost a hurricane at the time. Late in the evening I passed that way again; the larger portion of the trees were still lying in the same position, only a few having been planted. I learned, a few months later, that the trees had died, and the purchaser refused



to pay for them, and I believe the case is still in the courts.

This is but one instance out of hundreds that have come under my rather limited experience in noticing what my neighbours are doing; consequently, I do not always feel like taking sides against the nurserymen, even if they do sometimes make mistakes in executing orders for trees.

Too much care cannot be given to this protection of the roots of trees while being transplanted. They should always be kept covered with some damp material, such as hay, straw, moss, or old cloth, and not be uncovered until the moment arrives to place them in the soil. It is to carelessness in such matters that most people are indebted for the greater part of their failures in planting.—G.

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### TRELLISES FOR FRUIT TREES.

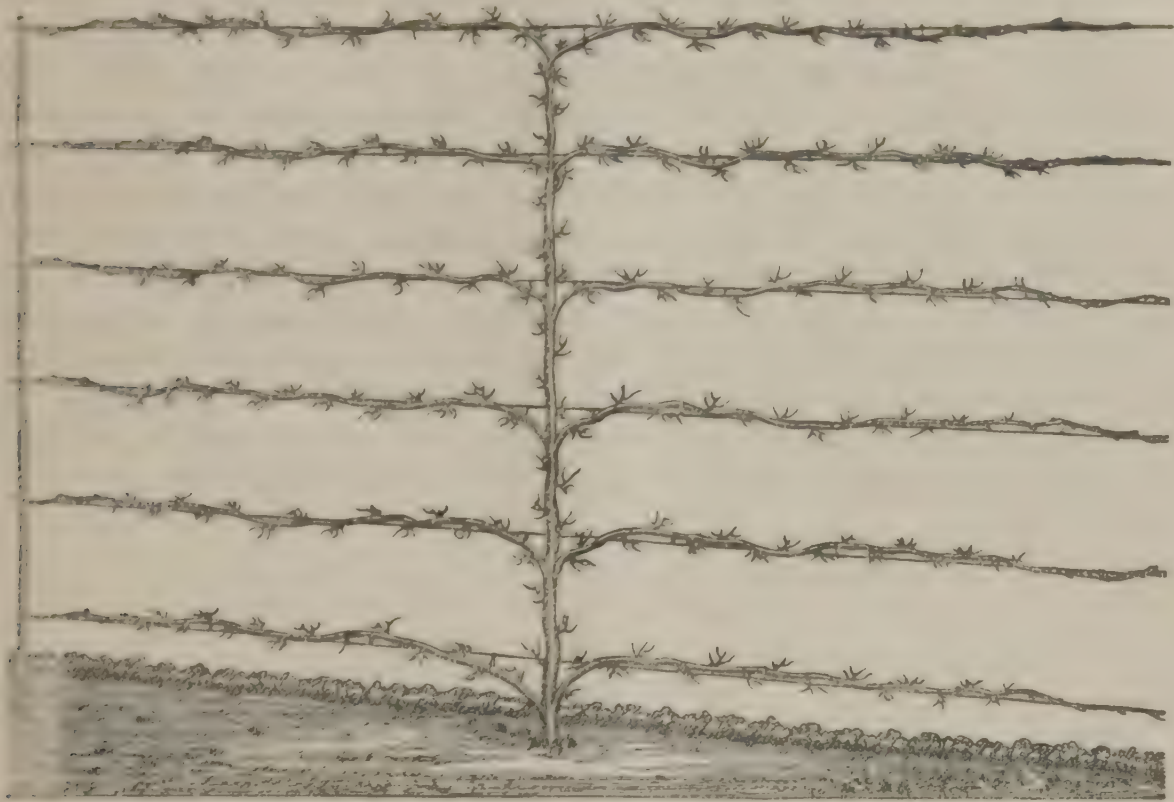
WE willingly give space to the following illustrated article which has been sent to us of the mode of erecting an Espalier Trellis, and also on the mode of wiring walls, carried out at Elvedon, in Norfolk. Messrs Barnard, Bishop, & Barnards have done much to improve the question of durability of walls chiefly erected for fruit-growing purposes, and they are continuing to simplify the work with as much ingenuity as possible. We quite agree with the *Garden* in its notice of the improvement, as compared with the old system of using nails and shreds. Independent altogether of the question of saving or economy, which is always a germane one, the fact of doing away with these multitudinous harbours for insect propagation, will tell immensely in favour of the general health and fruitfulness of the trees. Any one building anew should estimate for the additional wiring, which will soon repay itself. As to espalier trellises no one would ever think of using clumsy wooden erections when galvanized iron is to be had. The permanency of the erection and its general neatness are strong arguments in its favour. The *Garden* says:—"It cannot be too often stated that we may greatly improve on the old and too common type of wooden espalier or trellis for fruit trees. It, though made of rough materials, was often expensive and usually ugly. Cheaper at first than a good wire and iron trellis, it soon

proved anything but economical, on account of the frequent repairs which it required. Apart from the question of structure, a too common fault was the lowness of the old espalier; the trees on very low trellises could not attain a fair development, and required much repression. We notice with satisfaction, however, that fruit trellises are becoming greatly improved throughout the country, and we give an engraving (p. 65) of a light and neat, yet sufficiently strong espalier, made by Messrs Barnard, Bishop & Barnards, of the Norfolk Iron Works, Norwich, for the Maharajah Duleep Singh, in his gardens at Elvedon, near Thetford, Norfolk. This type of trellis is equally useful for trees with their branches trained up in a vertical direction, slender laths placed vertically being used for training the branches in the desired way. The firm who have built these trellises have paid much attention to the kind of work, and have erected many good samples of such trellises.

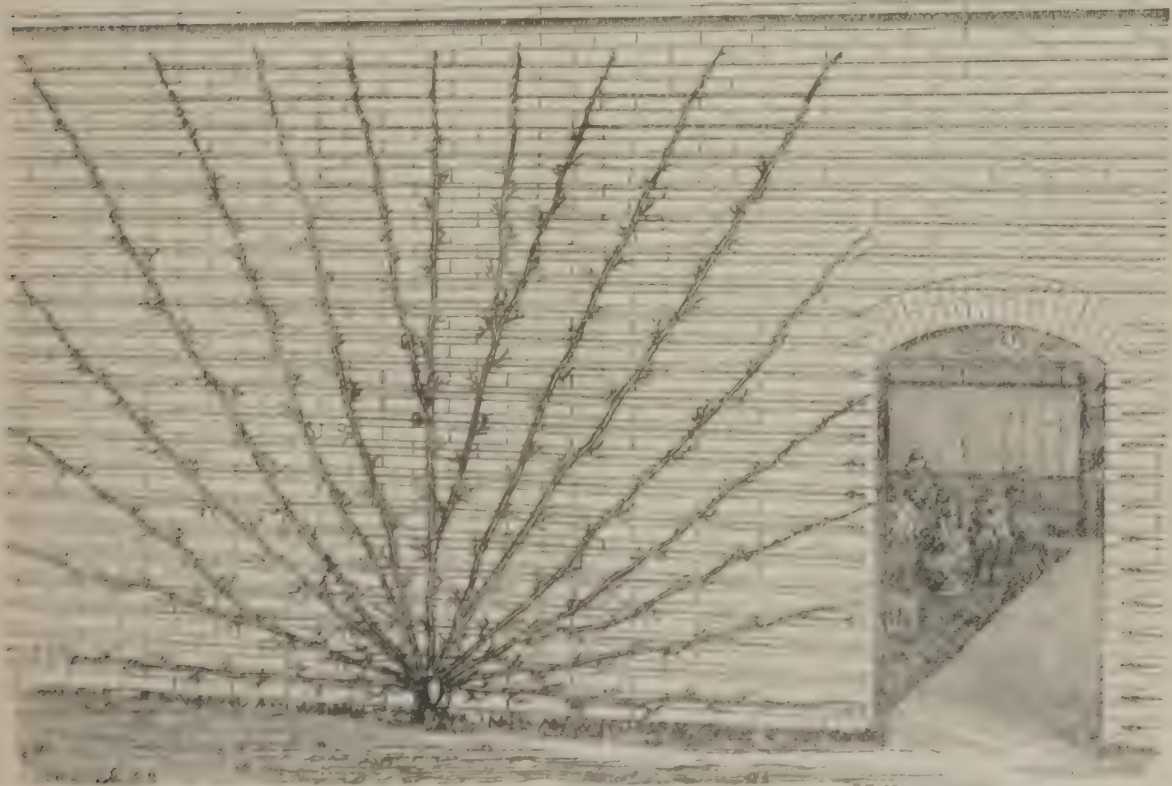
Equally important with the improved trellises is their improved manner of wiring garden walls, which is so good that it deserves general adoption. Several strong iron spikes are driven into the brickwork of the wall—in the right angle formed by two walls—nails with eyes in them being driven in in straight lines, exactly in the line of direction in which the wire is wanted to pass. The wires are



placed at about 10 inches apart on the walls, the wires must, however, be determined by and the little hooks for their support, also the kind of tree and the form to be given to



Espalier Trellis in the Gardens at Elvedon.—From the *Garden*.



Fruit Wall fitted with Galvanized Wire at Elvedon.—From the *Garden*.

galvanized, are fixed at about 10 feet apart. If horizontal training of the branches be adopted, the wires had better be placed to



form the lines which we wish the branches to follow ; if the branches are vertical, we need not be so exact. The wire—about as thick as strong twine—is passed through the little hooks, fastened at both ends of the wall into the strong iron nails, and then made straight and tight by being strained with the *raidisseur*. The wires remain at about the distance of  $\frac{1}{2}$  inch or  $\frac{3}{4}$  inch from the wall. If we consider the expense of the shreds and nails, the cutting of the former, the destroying the surface of the walls by the nails, and the leaving of numerous holes for vermin to take refuge in ; the great annual labour of nailing,

and the miserable work it is for men in our cold winters and springs,—it will be freely admitted that a change is wanted badly. The system of wiring a wall above described, which can be applied to concrete or flint walls as well as to brick, is simple, cheap, almost everlasting, and excellent in every particular ; and it must, before many years elapse be nearly universally adopted in our fruit gardens. A man may do as much work in one day along a wall wired thus as he could in six with the old nail and shred. Shreds, in fact, can be considered in no other light than as harbours for insects.



## The Veterinarian.

### AILMENTS OF THE SEASON.

#### ABORTION (?) OR PREMATURE LABOUR IN MARES.

IT is common at this season to hear sad accounts of farmers here and there losing foals in premature birth, and sometimes the loss is extended to the mares as well. From the frequency with which such have taken place in successive years, and have come beneath personal observation, after carefully estimating all conditions, we have concluded that 99 per cent. of such losses ought not to occur. We may therefore usefully consider the subject in a separate article.

In our last we gave brief consideration to a variety of skin diseases which come within the category of ailments of the season, the result of sudden alternations of temperature, acting powerfully upon the internal organs engaged in the digestive process and manufacture and elaboration of material for building up and repairing the body. We now proceed to explain how the process of such disorder will in the end produce the so-called abortion or slipping the foal, and premature labour. At this season, however, the term abortion is scarcely in its place. It really means *unfinished* as well as untimely, and is more properly applied to the expulsion of the contents of the womb at a much earlier period of pregnancy before the conditions of life are fully established in the young creature. On the other hand, premature labour should be the term employed, because many foals are dropped *before* the time, *i.e.*, prematurely, yet may be brought up and do well, and the means necessary for their expulsion are in every way nearly the same as when parturition is delayed to the full time. The term

abortion is nevertheless in common use to indicate both events; but, as we have endeavoured to shew, being incorrectly so applied, we shall avoid it altogether, substituting the more intelligible term, "premature labour."

The effects of the application of cold to the skin at the time preternaturally heated, perhaps moistened with perspiration, when the results are more speedy and permanent, are the contraction of superficial blood vessels, and determination or driving inwards to all large organs a large quantity of blood. At the time of pregnancy the womb of the mother requires a great amount of blood for the nourishment of the foetus, and under the influences of cold, wet, and exposure, it is not unlikely that the amount sent there may act injuriously. The foetus may suffer from general congestion, and even inflammation, and thus a partial or complete arrest of circulation may take place in its body. At other times the placenta or after-birth, through which all the blood passes from the mother to the offspring, may become, through the causes already mentioned, partially or completely involved in congestion or inflammation, beginning in small spots or centres, afterwards spreading outwards, and by the union or confluence of many of these spots, interrupting the flow of blood entirely. From both these conditions the foetus is deprived of support, and consequently dies in the womb and must be expelled. Another cause of death of the offspring at this season is the condition of the mother as depending upon the food, shelter, and general treatment during the previous part of the winter. Many farmers are too careless about the comfort



and well-being of their pregnant animals, and vainly imagine that, as there may be little or nothing for them to do, they may endure, without damage, a fair winter's short commons, and make up for all deficiency when grass comes again. This is a very delusive and destructive argument, for the pregnant animal, above all others, requires more support at that time, for she has not only her own body to nourish, but all her functions are exerted to make blood for the rapidly-growing foetus and membranes inside the womb. She should, therefore, have proper food, and every domestic comfort, so as to keep up the natural functions to a suitable degree of activity; but if she is allowed to become poor, to subsist on common, coarse, and bad food, the blood becomes poor and fails to nourish the offspring, and it is born small, weak, and prone to disease. If it survive the first few weeks of life, it may grow up a sickly thing, liable to rheumatism and deformities, lameness, &c., and proves of more trouble than value.

The general result, however, is that during the early spring, more especially if the weather prove mild and showery, and grass abundant, or if larger supplies of food, particularly of the artificial kinds, are given, that the weak and poverty-stricken animal begins to make blood too rapidly. The womb, the membranes, and even the offspring also suffer so much from the sudden flushing, that acute congestion or inflammation quickly follows, and the circulation is at once arrested. The offspring suffers from a species of strangulation and dies. Premature labour of course takes place afterwards, for the dead foetus becomes a foreign body, and must be expelled. There is still another common cause of death in foals at this season. This is the effect of violence of various kinds. All, of whatever kind, tend to produce the same round of conditions which terminate in the same result—cutting off the supply of nutrition between mother and offspring, which causes death of the latter. When mares are turned into pastures for the first time in the

spring they are apt to play, gallop, and roll about. Rolling on the ground is a most fertile source of premature labour. The men should be cautioned against allowing mares in foal to go loose too soon after coming in from work, and more especially if they are warm or are suffering from surfeit in its various forms. Even when the harness is removed an amount of irritation is sometimes set up by the application of cold to the parts that are moist with perspiration, as beneath the saddle collar, &c., that no sooner does the animal find herself free than she rushes out of the stable and commences to roll in the straw, yard, or pasture. Heavy work at plough or drawing loads, severe and even moderate trotting in saddle or harness; concussions received in passing through doorways when two or more are trying to pass at the same time, are fruitful causes of premature labour by producing death of the foal first. The connexion between mother and offspring is broken off—ruptured, and the latter dies as a consequence.

But premature labour is not as a serious question confined to the foal only. The mare as frequently suffers, and, if she does not die, the effects of an untimely birth may render her weak and unprofitable during a whole summer. It must be borne in mind that as the time approaches for natural delivery a great many necessary conditions are being established, and these are only complete at the time when the foal is born. Among these are the relaxation of the ligaments, uniting the hip bones so as to widen the birth passage; the other is the proper position of the foal. There are besides these other important features, but we need not stop to notice them now. It will, however, be understood by this enumeration that if the foal is dead from any cause already named, and the period of delivery is yet far distant, the proper relaxation of ligaments and position of the foal will not be secured. Parturition is therefore difficult and attended with danger. The passage is too small, and mal-position frequently makes matters worse, so bad, indeed,



that the most skilful obstetric practitioner may fail to save the mare by effecting early and safe delivery.

It is sufficient for the watchful agriculturist to be informed of the causes which singly or combined may cause loss among his stock, and we feel assured if they were made a more general branch of study, mortality might be very much reduced among all kinds of stock. But while we have pointed out the evils of improper food in pregnant animals, we must not omit to state that excessive evils are sometimes—nay frequently, born of kindness, and some creatures are even killed by it. Large quantities of highly nutritious food, especially when accompanied with close confinement, may engender constipation, and succeeding that indigestion of an acute character—colic. If the animal rolls about in these attacks the foetus is likely to be torn from its attachments in the womb and premature labour takes place; but the attack may kill the mare also by causing rupture of the stomach and some portions of the intestines.

#### COLIC.

According to various accounts which have come to hand at different times, the prevalence of colic among the agricultural horses of Scotland has of late been unusually great, and the usual result—death, has been surprisingly augmented above the ordinary rate, especially so with pregnant mares. The cause of this has been attributed to the scarcity of the usual kind of food, and substitution of coarser and inferior articles, added to which the lateness of the spring causing the work to be much behind, necessitated extra and severe exertion; thus animals over-taxed by work and below the mark in point of ability or condition, were more predisposed to disease, and, consequently, suffered most under the prevailing cause.

There is one particular in connexion with this outbreak of disease in Scotland, *i.e.*, as a wide-spread and serious affair, which recommends it to notice. Why is it confined to Scotland? Food has been as dear and scarce

throughout England and Ireland; the season quite as untoward, while work has also been delayed by continued rains, and when the farmers had a chance of getting upon the land, it was found that an ordinary team of horses could not break it up, for a sudden burst of sun and drought hardened the soil so much, that it looked in many places more like a macadamized road than broken ground. Although colic is an affection frequently rendered more frequent during the spring throughout England, it very rarely amounts to the nature of an epizootic as it appears to have done this year in Scotland. Much cause doubtless exists in the *preparation* of the food. The English farmer has a wonderful faith in roast beef as an element of strength, and wisely adopts it as an article of somewhat extensive use at his own table; and, reasoning from analogy, believes also that good corn, as peas, beans, and oats, furnish the most of what goes to form solid horseflesh, and therefore employs them more or less as manger food for his working horses. He practises a sparing use of roots, and adopts no system of preparation beyond cutting or bruising the fodder and grain. In Scotland, on the other hand, the food, even when of the best, is cooked, by being boiled or steamed; roots enter largely into its composition, and not unfrequently, the ingredients are not over good, as the cooking somewhat disguises it, and therefore an excuse is gained for the exercise of this kind of doubtful economy. Colic has always existed among all kinds of horses in Scotland 60 or 70 per cent. more than in England; and in every instance where the cooked food system has given way to sound dry corn and sweet fodder, the mortality has decreased. Colic is an affection which should never, or at the least, very rarely be seen among horses. Where good management exists, it is all but unknown, and where a horse is affected cure very speedily follows the application of ordinary remedies. We are now referring to large establishments where the horses are put to rapid and heavy work, where rest days



are few and far between, but where it is thought to be best policy to feed liberally and upon the best kind of food. Hard work, exposure, combined with inferior food, and especially cooked messes, which are quite unnatural to the intestines of the horse—are very prolific causes of colic and collateral diseases of the digestive organs. Chronic disease of the liver and kidneys is also common, and one affection which results from constant disorder of the digestive process, viz., Albuminous nephritis, rarely seen in England, is of very frequent occurrence in Scotland.

In this country, colic generally arises from the practice of giving too large quantities of food at once, particularly dry chaff and grain, after long fasts, and then allowing the animal to swell himself with water. By this practice the stomach is enlarged and weakened, digestion is also more or less impaired, and the result is as we have said—disease, sometimes chronic, and at others fatal from rupture of some important organ, as the stomach or large intestine, &c. Another cause arises from the practice of turning hungry animals upon plentiful pastures, or allowing too much green food the first time in the season.

One result of colic which sometimes leads to a great mistake, is that in which, after death, the greater part of the intestines are discoloured and black as a coal. It may happen that one portion of the canal slips inside itself as it were, a condition known as invagination or intussusception, occasioned by violent straining; in some cases also when the animal rolls violently, the expansion of membrane known as the caul and technically the *peritoneum*, which unites the intestines to the spine, is torn and some portion falls through the opening. In each of these cases strangulation of the gut follows, and death soon afterwards, but the intestines are blackened only in the immediate neighbourhood of the accident. The condition we more particularly allude to is that in which fermentation within the stomach and intestines has been going on for some hours, and

by constant pressure on the portal vessels, the flow of blood towards the liver is arrested. This prevents the veins of the intestines discharging their contents, and in turn we have extensive stagnation. The pains of colic from being unusually severe, gradually lose their intensity, and the animal ceasing to roll about, persists in standing, resting first one hind leg and then the other. The pulse becomes small, rapid and imperceptible, breathing short, quick, and catching; cold sweats bedew the body, and after a few hours he drops down and dies in a few minutes. The arrest to the circulation of blood from the intestines towards the liver gives rise to an extensive and general strangulation. Sensation is destroyed, and the parts begin to die; but being so essentially important in the maintenance of life, the animal dies before mortification ensues. These cases, we have said, are liable to be mistaken for each other—local strangulation or invagination confounded with that arising from pressure on the portal vessels. Nice discrimination is necessary, therefore, and a careful post-mortem examination will not only determine the true state of affairs, but also suggest the cause—an essential matter in the course of prevention.

In the *treatment* of colic, there are as many opinions almost as stars in the firmament; and in course of practice, the advocates of each will produce corresponding results of a successful character; but this says little where all cases, arising from different causes, are treated by the same stereotyped remedies. Some advocate trotting the animal about, and even flogging, to keep him upon his legs.

As the animal finds most comfort from rolling about, the stall (a box or empty barn is much better) should be well littered down with straw, and there he may be allowed to indulge. Medicine should always be at hand where horses are subject to colic, and the proper dose given at once. Oils of all kinds are too slow in action, and, besides, they nauseate the horse long after the attack is over. Nothing answers so well as aloes given



as a bolus or in solution, as preferred, the objection being on account of subsequent purgation, which may be induced. To obviate this, the following form may be used with great benefit: Solution of aloes, 4 ounces; sweet spirits of nitre, 2 or 3 ounces; essence of ginger (concentrated), 2 drams—mix, and give at once; and if no relief follows in 1 hour, repeat the dose. Injections of soapy water are most valuable, and should be passed up the rectum at least every hour, until relief is obtained. The use of pepper, onions, ginger, &c., to the rectum, sheath, or vagina, for the purpose of inducing the animal to urinate or stale, is to be condemned as cruelty, as no relief is gained by the passing of urine; the affection is not connected with the kidneys, and the frequent attempts made by the animal do not indicate that, but rather disorder in which all parts almost participate.

In all cases *tepid* water may be allowed the animal to drink if he will take it, as the action of medicine will be greatly facilitated when much food is present, and there will be less liability to its becoming hardened and forming large dry cakes or lumps. The next thing of importance is to make the animal as comfortable as possible, and to do this he should be frequently rubbed down and the bed kept as straight as possible.

When much fermentation is present some practitioners use spirits of ammonia, in  $\frac{1}{2}$  oz. doses largely diluted, and in order to allay excessive pain, powerful remedies are injected beneath the skin; but as a rule the simple means we have pointed out are generally successful.

The *prevention* of colic lies in the use of proper food — sound, dry provender in moderate quantities supplied at regular intervals. Care should be taken to avoid long fasts, and the supply of large quantities of food, and especially cold water afterwards. The stomach being then weakened is not capable of true digestion, and the animal, very hungry, bolts the food without proper mastication and insalivation. All kinds of

food which require cooking to make them savoury should be rejected. If they are not *naturally* tempting to the animal, no artificial preparation can make them useful or economical, as they produce disease, and the loss in the end is greater than the saving at the beginning. Bran or linseed tea may be given with chaff and corn, also a moderate supply of roots to promote a sufficiently loose state of the bowels, and when horses are turned upon grass, or green food is supplied the first time in the spring, they should not be allowed to eat their fill. Large quantities of food at all times are dangerous, but more so when they happen to be of a fresh and succulent kind.

#### SURFEIT.

The most common affection among horses at this season is that usually known as Surfeit. The term is too frequently employed to denote any or all the disorders of the skin, and from this cause much confusion arises.

There are two conditions which strictly belong to this category, one characterized by few external signs, the other attended with numerous swellings. The causes of each are very similar, having their origin in a disordered state of the digestive system, added to which certain adventitious influences are exerted, and so produce modified conditions.

In the first form of surfeit, commonly known as prurigo or pruritus, there is an intolerable degree of itching, which causes the animal to rub himself violently against everything he can get near, and in these acts the hair of the mane and tail is extensively removed. The skin becomes very hot, and there is sometimes a degree of attendant fever. In some cases the irritation is mainly confined to the legs, and cart horses thus affected, which are the most common victims, are nothing short of a nuisance from the continued noise they cause in stamping and rubbing together of the limbs when in the stable, besides the injuries inflicted upon the soft parts by the heels of the shoes, &c. In



old established cases the skin is thickened, the scales (outer layer) are considerably increased, and large patches of this nature are spread over the surface of the body, the hair being entirely absent.

The second form of surfeit is known as nettle-rash, or urticaria, and makes its appearance at this season of the year in the nature of sudden eruptions in different parts or over the body. The swellings vary in size, from a hazel nut or walnut to that of a man's hand. In one instance, which occurred some years ago under our observation, the disease assumed the shape of a broad belt, and extended from the side of the neck, over the shoulders, ribs, and flank, to the haunch. Occasionally the swellings are but few, small and isolated, while the more severe cases are attended with febrile symptoms, and even attacks of disease in the respiratory organs. The swellings also now and then under irritation enlarge and are converted into abscesses, particularly about the back and neck, beneath the collar or saddle, and other closely fitting harness. Great irritation sometimes attends this affection.

Plethoric animals, or those having a full habit of body, are mostly affected, particularly when the food is too rich and abundant, or after such is supplied too rapidly to animals which have been badly fed and housed during the winter. Sudden chills and draughts of cold water while in a perspiration are common causes, prevailing cold winds from the north or east during the early spring, with the powerful sun in the day time having a great influence upon the system, because at this time it is laid under heavy contributions for supporting the growth of the new coat. The swellings may last from ten or fifteen days to many weeks, sometimes occasioning no perceptible uneasiness or disturbance, while the simple pruritus, or itching, will remain upon the animal for a year or more.

The treatment in each case in its simplest form consists of a low diet of bran mash with linseed tea, &c., for a few days. The bowels should be freely moved by a purgative, and a

lotion composed of one or two ounces of tincture of arnica, or merely spirits of wine, to a pint of water, may be sponged over the affected parts two or three times during the day. The severe itching is sometimes very readily allayed by using weak acidulated solutions, as 2 ounces of the oil of vitriol to 1 gallon of water. The hot air bath is probably one of the most effectual remedies.

If the respiratory organs become affected, the treatment assumes a more difficult nature, and the advice of a skilled veterinary surgeon is desirable.

#### STINGE IN OXEN.

The second form of surfeit, as noticed already under the technical term of urticaria, is sometimes seen in cattle during the hot days of the spring and summer months. There is one special peculiarity in its mode of attacking these animals, arising, no doubt, from the different habits and other conditions. It is seldom to any extent over the body, but mostly appears very suddenly in the shape of swellings about the muzzle and nostrils, extending some distance along the skin and lining membrane of the nose, and there impeding the passage of air in respiration, produces distressing symptoms of suffocation. The common remedy of the cowman and dealer is the use of the knife, with which he divides the septum, or partition of the nostrils, and thus effects a local blood-letting, which relieves the parts.

The cause is plethora suddenly produced by rich food and inactivity, especially after scarcity. Animals previously confined during cold weather on bad pastures, and incautiously turned upon others that are forced by warm weather and gentle showers, are the usual victims. This fact should be noticed by farmers, in order to guard against the affection by a regular system of usage and preventive measures. Purgation, water containing nitre for a few days, and a less stimulating diet are the usual means necessary for effecting a cure, and also warding off attacks in animals that are observed to be "doing" too well.



## CHAFES AND GALLS OR FRETS.

Another source of annoyance among working horses at this season, is the frequency with which the skin is chafed and rendered sore in some animals. As soon as the days become warm and close, they perspire freely, and dust readily adheres to the damp surface; the harness afterwards rubbing or flapping over the skin very soon removes the hair, and creates a red and tender spot, or still worse, it is raw, and, besides being red and very sore, discharges a thin clear fluid. Horses that are badly groomed are common sufferers, and those having collars too large, saddles and other parts fitting badly, or probably working with one trace too long, often return to the stable with very bad wounds.

Under all circumstances great attention should be paid to working animals at this season. The skin should be thoroughly cleaned, and the harness likewise freed from all accumulations of hardened sweat and dirt, and those parts which admit of the process are best treated with an occasional dressing of oil. As horses increase or decrease in size, great attention should be directed to the collar, as any alteration in the condition may render this part of harness a very dangerous member during even a moderate journey or day's work.

The treatment of chafes is very simple. Arnica lotion, composed of one part of tincture of arnica to twelve of water, is a good remedy. It may be applied by a sponge or soft rag. A little nitre may be given in the bran mash, and the parts when very raw should be dressed with glycerine, and then dusted with flour.

## BLACK-QUARTER.

Young cattle at this season of the year are liable to a form of blood disease which proves rapidly fatal, and from which probably the losses are by far greater than from any other known non-contagious affection. Black-quarter—or as it is variously known by the equally vulgar titles of Quarter-

evil, Quarter-ill, Puck, Speed, Hasty, Black-leg, &c.—is purely dependent upon the condition of the blood as influenced by various circumstances connected with age, management, pasturage, &c. Young cattle are alone liable to it, at least it very rarely happens that cows after having had a calf become affected; and when instances of so-called black-quarter have appeared in the latter kind of stock, the disease assumed such characters as to go far towards establishing peculiarities incidental to that age only. There is then some doubt existing as to the truth of statements which relate such events in older animals. Young cattle in which the disposition to thrive rapidly is apparent, are the common subjects, because any excess of blood is not drawn off by Nature's acts as in older ones. In the first all goes to the formation of blood, but in the older animals pregnancy, the secretion of milk together with greater wear and tear of the system, are causes which act as the safety-valve, and thus prevent any of the effects of over-repletion.

Black-quarter occurs more frequently at this season than others, from several causes. The preceding winter being attended with scanty pasturage, stock generally is limited to smaller quantities of food, in some cases injudiciously so, and the quality may likewise be none of the best. Again, dry fodder forms the bulk supplied, all of which are not in any degree famous for furnishing large quantities of rich nutriment to the system. Besides, cold weather has much to do with the fact that black-quarter cannot take place to any extent in winter; the digestive organs are in greater activity, supplying the elements of heat which the body requires so much. But as soon as the grass grows, forced by warm rains and bright weather, the animal obtains far more nutriment than the organs can appropriate; they become surcharged, the bloodvessels throughout the body are also seriously overloaded, and the blood itself so very rich, that in various parts beneath the skin, over the quarters, back, or legs, &c., the vessels give way, and allow the blood and



lymph to exude, and cover a space of variable extent. If the hand is passed over the parts a loud kind of crackling noise is given out, an effect due to the decomposition of the effused materials and disengagement of air.

Certain pastures, sometimes whole farms, are productive of this disease, and farmers have been ruined in consequence, which circumstances point to the advisability of turning over the ground by the plough, and for a number of years grazing off newer pastures. But in many instances by the exercise of proper care the disease may be avoided without even that course, at least for a time.

Black-quarter, as already stated, is rapid in its appearance. Animals well and hearty at night are found dead next morning, and rarely, even in the slowest forms of attack are there any particular signs beyond slight lameness or appearance of unusual excitement. To these are quickly added laboured breathing and intense pain, and the creature falls or lies down never to rise again. If the course of the disease is slow and attack slight, the parts affected will slough and form unsightly sores which heal with great difficulty, and not uncommonly the mouth and tongue are covered with blisters which after bursting exhibit the same characters.

The treatment of black-quarter is a most difficult matter, as affected animals are seldom seen until it is too late. Blood-letting and purgation should be resorted to at once, where practicable; and if such be successful, in a day or two afterwards, the inevitable prostration of strength must be combated by stimulants, the sloughing sores requiring solution of chloride of lime, &c., to keep down the intensely disagreeable smell which arises from them.

In the way of *prevention*, much may be effected by general management. Young stock should receive a more liberal allowance of nutritious food during the autumn and winter months, by which they will grow and develop more gradually, and thus be prepared for the sudden effects of rich and succulent grass at the beginning of spring and

warm weather. It is advisable also when the grass of pastures is caused to spring rapidly and in large quantity, not to allow young stock to graze too much upon them, but rather limit the feeding to two or three hours daily for a time, taking care to have a partially grazed pasture to turn them upon for the remainder of the day. Some breeders have practised with success the plan of sending the stock for a walk of two or three miles each day, thus creating a demand for the food consumed by the waste occasioned by exercise. Next to these precautions, the use of surgical and medicinal remedies is beneficial. For a great number of years we adopted the use of a long seton in the loose fold of skin (dewlap) in front of the breast, with great success. This was *not* put across, but caused to pierce the skin at the lower third of the neck; the needle armed with broad tape was carried down to the bottom, at least 12 or 15 inches below, where it remained over two months, causing suppuration, which had the effect of usefully counteracting any tendency to making blood too rapidly. The pain and inconvenience produced also had, doubtless, much to do with the benefit arising from it. Some object to the seton because they consider it spoils the form of the dewlap, but we consider it not only a more effective but decidedly a more honest proceeding than the operation of so-called "nerving," which many quack pretenders recommend, simply because no nerve is found where they search, therefore the affair is a downright imposture.

The rest of the treatment consists of the timely use of a purgative drench, consisting of 6 or 8 ounces of Epsom salts, two or three drops of Croton oil, and 1 ounce of ground ginger. This we have usually administered at the time the seton was inserted, taking care to keep the animals in the straw-yard for shelter for two or three nights afterwards, if the weather was at all cold or showery. Afterwards, if the tendency to plethora was at all great, we adopted the use of powders of neutral salt, such as the sulphate or chlorate



of potash, mixed with linseed meal or bran, 1 ounce of the salt being allowed for each animal twice or thrice a week for about two months. By these means we have succeeded for years in keeping away blackleg from farms, on which previous tenants have been starved out. In order to cause the creatures to take the medicines a little trouble is required, but if it saves the lives of one out of a hundred something above an ordinary remuneration is obtained. The salt finely powdered is carefully mixed with five or six

times its bulk of bean, bran, barley, or linseed meal, and afterwards thrown amongst green food which has been cut in the chaff machine. This mixture may be put into troughs or mangers in an open shed or farm-yard, where the animals can be taken after grazing upon the fatal pastures, usually taking care to keep them an hour or two previously without food. We have, however, under certain circumstances, used the powders without any removal from the pastures with every success.



## Dairy and Poultry Yard.

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### CHARCOAL FOR RENNET—DAIRY DISINFECTANTS.

CHARCOAL filters have been recommended for purifying bad rennet, and small bags containing charcoal for keeping rennet-jars sweet and the rennet in good order; and although these suggestions have been urged by some, we (*Rural New Yorker*) regard them—or at least that for restoring putrid rennet—as of doubtful utility. The use of charcoal bags for the rennet-jar, in the way proposed, can have no injurious effect upon the coagulating principle of rennet, and doubtless may act as a deodorizer to some extent; but what seems to us to be the most practical course to be recommended is the employment of good sweet rennet in the first instance, and afterwards such attention to steeping and keeping, or its preparation for cheese-making, as will insure all freedom from objectionable taint. In fine, we do not believe in the practice of doctoring up putrid and rotten rennets so that they will not stink, and then using them for manufacturing a palatable and healthy article of food. We know of no long and well-conducted experiments in the use of such deodorized or restored rennet for cheese-making that prove it to be perfectly harmless; and we should not care to run the risk of making a large quantity of cheese with such rennet.

Granting that putrid rennet can be deodorized, or restored in the way suggested, and that such rennet coagulates the milk, and has, apparently, no immediate effect in doing injury to the curds, is it not more reasonable to suppose that the use of good, sweet, healthy rennet would be likely to produce the most desirable results? Would not the putrid rennet, though apparently restored,

have an ultimate effect upon the keeping qualities of the cheese, rendering it short-lived and liable to lose in flavour? These are questions which we have not as yet seen satisfactorily answered by those who advocate the theory.

Theoretical cheese-making may all be very fine, but in real work we must all get down to the solid, rugged principles that will stand the test of practice. We do not say but that it may be possible to restore slightly tainted rennet, so that its use may be admissible in cheese-making; but we cannot recommend it; and no words of ours shall be given to induce dairymen to slacken their vigilance in the curing and preparation of rennet, under the impression that putrid taints may be destroyed, and the article made sweet and healthy. Putrid rennet is often in the market, and has not unfrequently been the means of heavy losses when used for cheese making. The place for such rennet is in the compost heap, and not on the cheese vats. We know that good, healthy rennet will make good, healthy cheese. We know that good, sweet rennet, properly prepared and cared for, can be kept sweet and free from putrid taints, and we deem it better to adhere to first principles and accept a certainty, than to fall into evil practices, and then attempt to remedy neglect by doctoring up rotten rennet and putrid taints by charcoal filters.

This is a common-sense view of the matter, and we must await further developments in science and further experiments with rennet before adopting other views.

The great remedy to be relied on in the dairy for the prevention of foul odours is at-



tention to cleanliness in every department—the free use of *boiling water*, scrubbing-brush, and broom, vigorously applied; lime can often be used to good advantage. Somewhat recently we hear of chloralum as one of the best articles for cleansing and purifying all agents to which decomposing matters may adhere. It is highly recommended in every instance for general use in the dairy. We have made no direct tests with this

article, but are informed by those who have had it in use during the past season, that it gives a freshness and sweetness to the air, and insures a more complete purification than many other disinfectants, which charge the air in such a way as to create discomfort. If we mistake not, this preparation is of English origin, but is now manufactured in this country, or at least furnished by our leading chemists.



## The Apiarian.

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### *DEVELOPING A PEACEABLE DISPOSITION IN BEES.*

AT the last session of the North American Bee Keepers' Association, an interesting discussion ensued upon the question submitted by Mr Quinby. "Will the right management of bees develop peacefulness of disposition, as we know wrong management develops the opposite?"

Dr Bohrer, of Indiana, said he had handled bees roughly without irritating them, and without keeping them peaceful. He considered that bees had fixed habits, and that they acted wholly on the defensive. In one instance he had for six days handled a colony of bees continually without their shewing any anger. On the seventh he opened them with confidence, but they resented it and not one, but all of them flew at him, and he was not aware of doing anything unusual, or that should have irritated them.

Dr Lucas, of Illinois, differed with Dr Bohrer. Had seen one Brooks, of Illinois, exhibit bees that he was satisfied were tamed. He carried them about to fairs for weeks and opened and handled them with impunity. He had handled them himself for Brooks, when he was disabled, and found them to be as quiet as desirable. Tried his own uneducated bees and failed. Thought that they could be taught to recognize their keeper by scent.

Mrs Tupper, of Iowa, thought that the members misunderstood the question of Mr Quinby. He understood the question to apply to the improvement of the race, and not educating single colonies. Bees at fairs are not in a normal condition, and consequently did not act normally. To teach bees in an apiary to know their owner, would require constant teaching, as young bees were constantly taking

the place of the old ones. Thought they did know the way they were handled and managed, not that they know strangers, but that strangers were careless or ignorant of how to act with them. Dr Bohrer, no doubt, acted carelessly on the seventh day, having too much confidence. Some bees are cross, where others are the opposite, under apparently the same circumstances. If we would give more attention to the selection of queens to breed from, that produced good-tempered bees, great improvements might be made in that respect.

Mr Zimmerman asked: Does opening a hive often make the bees more quiet?

Mrs Tupper replied that it does.

W. R. King, of Kentucky, thought that the scent of crushed bees would induce anger.

Aaron Benedict, of Ohio, said damp rainy weather had an influence in making bees irritable.

T. J. Pope, of Iowa, had a hive that he opened five or six times a day for some time, and always found the bees peaceable, but letting them alone for several days, they shewed rage when he attempted it.

Mr Moon said all bees could be irritated—but deal gently with them and they will deal gently with you.

H. A. King, of New York, thought that bees should be thoroughly subdued. If so there would be no irritability.

Mr Merrill said breathing on the bees would irritate them. He had known instances where the breath of persons six or eight feet off had enraged them.

Mr Homer, of Minnesota, said bees can be domesticated. Had bees that set by a path that became so accustomed to passers that



they never tried to sting. Believed that they could be familiarized and accustomed to being handled, so that they would be perfectly peaceable.

Dr Hamlin gave experience with bees placed on a path near a gate that was used and slammed repeatedly during the day, and thought they became accustomed to it, and did not mind it.

Mr Fetridge, of Iowa, had bees in Huber Leaf Hive, set in his porch, which soon became so tame that they bothered no one.

President Clark thought Mrs Tupper correct in the construction she put on the ques-

tion. It was an interesting subject. It was perhaps more so to him than others, from the fact that he was bee-hated. Why should we not improve them? While there was evidently a difference in the temper of the same varieties of bees, it was also found that they had their bad moods. They are not always alike—amiable. Like men, some you can approach at all times with confidence, others, you have to find out their moods first. A mother may produce a quiet progeny, while queens from her may have vicious offspring. As a rule it does not take as much to arouse the black as the Italian bees.



## The Naturalist.

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### THE CAUSE OF THE GROUSE DISEASE.

MR FRANK BUCKLAND communicates the following remarks to *Land and Water*:—I have lately had the opportunity of dissecting four grouse which had been found dead from the grouse disease. Two of them were from a Yorkshire moor to the north of Manchester. Their lives appeared healthy, and the intestines free from parasitic worms. The lungs, however, exhibited signs of inflammation, and were congested at the edges. The other two were sent me by Mr M. Bass, M.P. They were found dead in Scotland. In both of these I found most decided symptoms of inflammation of the lungs. In one case the left lung was hepatized, which assumed an appearance as solid as liver, and when put in water sank instantly to the bottom. The other grouse also exhibited symptoms of inflamed lung. The disease which is now prevalent seems to have attacked the lungs, and lungs only. The primary cause of this disease is the continuous wet and cold. I consider there is no remedy for it except putting shelter for the birds, say, hurdles filled with furze or heather, and placed in the form of a cross in various parts of the moors, so that there shall be a warm corner whichever way the wind blows, but it is doubtful if the birds would take to this artificial shelter.

A few days ago I wrote that salt should be strewed about in localities where the birds might easily find it. That this would be a good and inexpensive remedy I am quite certain, even though the disease is lung not liver. Salt is really muriate of soda, and is the only form of medicine that I think birds would take naturally. "Scotus" writes me as follows:—

"It would be quite easy to strew the grouse salt. All you would have to do would be to

take a bundle or two of straw and spread it in different conspicuous places on the hill. Scatter some grain in the straw—the grouse would soon find it out like the stooks in autumn—and then in a day or two substitute the salt. Whether they would eat the salt, I can't say; but the straw would attract them, and they would see it."

Another good suggestion has also been kindly sent me, namely, that lime should be strewed about, and I quite agree with this idea:—

"Will you pardon me for suggesting that perhaps lime placed in different spots on the moors might also contribute to the healthiness of the grouse? It is almost needless to remind one so well acquainted with poultry and its congeners how necessary lime is to our domestic birds. If salt were placed on the moors it would be soon consumed by the sheep; indeed, it has been always a surprise to me that rock-salt is not always put on the moors for the sheep. This is a precaution neglected also by farmers in England as a general rule, though many diseases of sheep and cattle might be prevented by the liberal use of salt. The difficulty of the use of salt on the moors as an antidote to the grouse disease would be great; if salt in a powdered form were used, it would soon dissolve by rain, at least that portion not consumed by sheep; rock-salt would not be readily pecked off or up by birds."

I understand that in many places this year the grouse are found dead about the hill-tops, whereas when the last disease appeared they were found dead about the watering-places as though they had come to drink. It would be interesting to know if this disease was infectious or contagious.



THE  
COUNTRY GENTLEMAN'S MAGAZINE  
A BOOK FOR THE COUNTRY HOUSE

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AUGUST

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*LAND IMPROVEMENT.*

AT the instance of the Marquis of Salisbury in the House of Lords, a Select Committee was appointed to enquire into the present position of the laws regulating the employment of certain moneys in improving lands, and also to enquire into the working of those laws which controlled persons having but limited ownership, and which also allowed certain facilities for raising money upon the security of such lands to be laid out upon their improvement, more particularly as regarded drainage.

The report, which was issued on Tuesday, states that the Committee have met, and have taken the evidence of the Inclosure Commissioners, of officers connected with land companies, and of various surveyors, solicitors, land agents, and occupiers, who are familiar with the operation of the Improvement Acts. The general result of the evidence is to shew that considerable use has been made of the Acts, and extensive improvements have been effected under them; but that the progress has not been so rapid as was desirable, and that what has been accomplished is only a small fraction of what still remains to be done. Mr Bailey Denton, who has given special attention to this subject, states as the result of his calculations, that out of 20,000,000 acres of land requiring drainage in England and Wales, only 3,000,000 have as yet been drained. Mr Caird, the Inclosure Commissioner, speaking not only of drainage, but of all kinds of improvement, estimates that we have only accomplished one-fifth of what requires to

be done. It is, however, admitted that the difficulty of obtaining labour would, in many districts, impede a very rapid extension of drainage; and it is right to note that in the absence of specific information these estimates are of a speculative character. The Committee have inquired at some length into the profit which may be expected from the improvements to which these Acts refer. For the extent to which Parliament may be willing to interfere in order to encourage them, must depend very much upon the extent, and the certainty of the gain that may be expected from them. If the profit which they bring in is both considerable and secure, the further attention of the Legislature is scarcely needed for them; the ordinary motives of self-interest may be trusted to bring capital to a really lucrative investment. No Parliamentary powers have been required to encourage the opening of mines or the development of building land, beyond the mere permission to grant leases. The case for Parliamentary consideration lies in this, that the improvement of land, in its effect upon the price of food, and upon the dwellings of the poor, is a matter of public interest; but that as an investment it is not sufficiently lucrative to offer much attraction to capital, and that therefore even slight difficulties have a powerful influence in arresting it.

THE VALUE OF AGRICULTURAL IMPROVEMENTS.

The commercial value of agricultural improvements under the conditions prescribed by the present Acts, is best arrived at by comparing



the terms on which the owner borrows with the actual or prospective income which he derives from them. The interest at which the land companies lend, is usually  $4\frac{1}{2}$  per cent. The sinking fund, calculated to repay the loan in twenty-five years, together with the interest and sinking fund on the preliminary expenses, bring up the average payment upon the effective outlay to a little more than 7 per cent. The charge to the landowner is of course the same, whether the money has been laid out upon drainage or upon buildings, but the return which it yields to him differs considerably in the two cases. In the case of drainage, it appears that sometimes, though not in all cases, the tenants will pay back to the landowner in the form of rent the full 7 per cent. which he pays to the company. In that case the landowner is, for twenty-five years, neither a gainer nor a loser upon the transaction. At the end of that time, if the drains are still effective, he gains the whole 7 per cent., but this condition is by no means a certainty. In estimating the profit which drainage ought to yield, it is necessary to bear in mind that it is exposed to the risks of ordinary industrial undertakings; it must take its rank, not with the investments that are absolutely secure, but with the investments that depend for their yield upon the attention, the skill, and the good fortune of the investor. Drains which were laid thirty years ago, by the inventor of the present system of pipe drainage, are useless now, because the pipes were only one inch in diameter. Drains which were laid twenty years ago, under the superintendence of the engineer of one of the land companies, have become worthless since, and have been taken up and relaid. Over large breadths of pasture land expensive drainage has been found to be useless, if not injurious, apparently because it has not been followed by a system of manuring which would cost from £4 to £5 per acre in addition. Drainage again has been found to fail, where the tenant has neglected to aid it by subsoil ploughing; where he has failed to watch the out-falls; where the soil is ferruginous; where it is gravelly; where it is sandy; where it is so porous as to encourage the downward growth of the roots of trees; and even where it is favourable to the growth of particular kinds of weeds. The investment therefore has in it a speculative element, and is not one of absolute security. Men will not be tempted to make it by the rate of interest which would satisfy a mortgagee;

they must receive interest enough to ensure them against the occasional risk of complete or partial failure. But this return, whatever hazards may attach to it, appears, according to our evidence, to be more than the landlord receives in a great number of cases. A frequent arrangement is, that the landlord only receives from the tenant 5 per cent. on the effective outlay to reimburse him for the 7 per cent. which he pays for twenty-five years to the company. Practically, therefore, the investment presents itself to him as one involving loss to himself, with a gain to his heir contingent upon the success, proper execution, and subsequent maintenance of the improvement. The profit of farm buildings is less easily susceptible of calculation, because the erection of them frequently represents rather the discharge of accumulated arrears of maintenance than an improvement properly so called. It is difficult, therefore, to say how much additional value they give to the rental, without knowing to what point the rental would have fallen if they had not been supplied. But without such a correction, they stand in a position less advantageous than drainage. In many cases it appears that they do not add even 5 per cent. to the rent of a farm. Mr Sander-son puts it at a rate little exceeding 3 per cent. Any deduction from the rate of 5 per cent. would bring the transaction hazardously near to the point at which it must involve a loss. If the most favourable case occurred, and the farmer gave him 5 per cent. instead of 4 per cent., he would, on the £1000 loan, be a gainer of a capital sum of £158; but the interest of this sum would have to defray landlord's repairs for ever. The margin of profit, therefore, even if everything succeeds, is very small.

#### COTTAGE BUILDING.

On the balance-sheet of cottage building it is unnecessary to dwell. All witnesses agree that, apart from any land that may be attached to cottages, no pecuniary profit is to be obtained from building them. Whatever return they yield must be found in the more available labour and the better class of labourers which good cottages will secure. The average rent which they will bear, after provision for maintenance, appears not to exceed  $2\frac{1}{2}$  per cent. on the cost of building them. The replacement of bad cottages by good is an even less remunerative operation. Mr Randall mentions a case within his experience where £8000 was spent



on a single estate in the improvement of cottages, and the consequent addition to the rental was £8, 17s. The Committee are, however, so sensible of the amount of improvement which still remains to be effected under this head, of the increasing importance of good habitations in fixing the residence and raising the character and working power of the labourer, and of the indirect benefit which may be thus imparted to landed property, that they cannot recommend that the construction of cottages necessary to the actual or improved cultivation of the estate, should be dealt with on any less liberal system than that which applies to drainage and farm buildings.

#### THE DIFFICULTIES OF LIMITED OWNERS.

It appears probable that this state of things will be rather aggravated than improved by the present movement in prices. Drainage which, 30 years ago, cost from £4 to £5 an acre, now costs £7 in some parts of the country, £10 in others. The cost of building has also risen very largely; so that cottages which could formerly have been built for £300 the pair, now cost from £360 to £400. The general price of agricultural produce has not risen nearly in the same proportion. If, therefore, the Legislature desires to quicken the advance of agricultural improvement, it is important to examine whether any alteration can, without injustice, lessen the difficulties to which limited owners are subject who desire to make capital expenditure upon their estates. In doing so, it may be desirable to remove a misapprehension which seems to prevail in some quarters upon this subject. It is sometimes said that all the difficulties of limited owners might be solved by prohibiting settlements, and so removing the limitation under which they lie. Even if this prohibition were compatible with the habits and feelings of the nation, it would, for two reasons, fail to afford any effectual relief. The improvement of land, like property in land, would not possess much attraction as a merely commercial investment. A landowner is led to it more by solicitude for his descendants than by hope of personal gain; and the prohibition of settlements would make his solicitude idle. It would, therefore, remove one of the chief motives by which improvements of land are now dictated. A second, and more formidable objection to this proposed solution, is to be found in the fact that settlements are the most serious limitation under which the

limited owner lies. Mortgages, of which it has never been proposed to get rid, and which in the absence of settlements would have a probable tendency to increase, are a hindrance to charges on estates for capital expenditure, which cannot be surmounted except by special legislation.

#### COMPLAINTS RESPECTING BORROWED MONEY.

The complaints which we have received do not call in question either the ability or the zeal of the Commissioners, or of the other officers who have the supervision of these improvement charges. The two chief objections are that the terms on which the loans are offered are too high, and that the control exercised by the Commissioners is sometimes embarrassing; and it is in these directions, if any, that the relief must be afforded.

The annual payment charged on lands in respect of improvement loans consists, of three elements. There is, 1st, Interest upon the outlay. 2d, Instalments of sinking fund on the outlay. 3d, Interest and sinking fund on a variety of preliminary charges made by the companies and by the commission, which are added as capital to the main charge.

The interest upon the outlay must depend mainly upon the state of the market, and cannot be materially affected by legislation. Two solicitors of eminence, Mr Parkin and Mr White, recommend that trust-money should be available for this purpose. These funds are generally invested in securities not having a higher rate of interest than 4 per cent; and permission is usually given in settlements to employ them for paying off mortgages. To make them applicable to improvement mortgages at a rate of 4 per cent. would therefore be a very slight enlargement of the existing practice. The annual burden of the sinking fund must depend entirely on the length of time over which the repayment is to be spread. The payment would be, of course, altogether escaped, if the mortgages were made perpetual. This proposal, however, is strongly deprecated by nearly all the witnesses. The West of England Drainage Company obtained from Parliament the power to charge lands in perpetuity with drainage loans advanced by them, in priority of all other charges, and without any security whatever being taken that the improvement should add to the value of the land. It deserves the consideration of Parliament whether such a power ought to be allowed to remain on the Statute book. The Committee con-



tainly cannot recommend that the power of making a perpetual charge for improvements shall be granted to any one else. The General Land Drainage Company has power to charge for a period not exceeding 50 years. The private landowner, under the Act of 1864, can only charge for 25 years. The Committee see no sufficient reason for maintaining this distinction to its full extent; and they would be disposed to confine the shorter term to those cases where the remainder-man is largely interested. The Committee would recommend that all owners should be enabled to spread the repayment of the charge over a period equal to ten years more than their own expectation of life, according to tables to be selected; the period being in no case greater than forty years, nor less than twenty-five years. The effect of this provision would be to give an extension of time, increasing with their youth, to all persons under the age of fifty-eight. The preliminary charges necessarily vary in their severity according to the amount of the sum borrowed. There is no ground for believing that any undue exaction is made either by the Inclosure Commission or by the land companies. It is inevitable that small borrowers, whose loans involve as much trouble and expense as large borrowers, should have to pay a heavier proportion on the amount of their loan. But, nevertheless, the burden is severely felt. While the average cost is 7 per cent. upon the loan, and in the case of some very large borrowers, the work has been done at  $4\frac{3}{4}$  per cent., in the case of small borrowers it has reached the amount of more than 15 per cent. This latter charge amounts to an addition of full 1 per cent. to the yearly payment. With the present machinery this cost is hardly to be avoided. It can only be escaped by small borrowers in those cases where it is possible to dispense with the land companies and the commission. But no great zeal for improvement can be looked for in them, if, in addition to paying 7 per cent. annually for effective outlay, they have to pay 1 per cent. more annually for financial machinery.

#### THE INCLOSURE COMMISSIONERS.

The other complaint against the existing system is directed to the functions of the Commissioners. That they have performed their duties both with ability and with courtesy is disputed by no one; but, nevertheless, objection has been taken by many witnesses, in some cases very earnestly, to the kind of control which they

exercise. A needless minuteness, and a rigour which refuses to bend to local requirements, are imputed to it. It is manifest, indeed, from the evidence of the Commissioners and their inspectors, that the latter claim a control so complete over the execution of works as to leave little discretion to the landowner or his agent. In the selection of sites, in the arrangement of plans, in the choice of materials, in the drawing up of specifications, it is no unusual thing for the inspector to take a view opposed to that of the landowner and his agent; and whenever that contingency arises, the landowner must give way. Mr Parkin and Mr Freshfield, both solicitors in large practice, give evidence of the discontent with which this control is endured. It is an anomaly that private transactions should be submitted to the control of a Government officer, and it is difficult to see how this anomaly can be justified, except where it is necessary to protect the interests of the remainder-man and mortgagee. The Committee recommend that a limited owner, with the consent of his trustees, shall be permitted to charge upon his estate, with a term of repayment fixed as above mentioned, any improvement as defined by the Act of 1864, being only required to endorse the charge with a certificate from a surveyor approved by the Court of Chancery, or the Inclosure Commissioners, that the improvement is beneficial to the estate, and that it has been properly carried out. The Committee desire to draw attention to the evidence of Mr Bailey Denton and Mr Caird, as to the expediency of extending the powers of charge to the storage and conveyance of water for agricultural and sanitary purposes.

#### RECOMMENDATIONS OF THE COMMITTEE.

It will be convenient to sum up the recommendations that have been made.

1. Limited owners, with the consent of trustees, shall be empowered to spend trust-money upon the improvement of their estates, on redeemable mortgage.
2. Limited owners may charge their estates with improvements; the charge to be redeemable within a period exceeding by ten years the owner's expectation of life; so that no such term may in any case be less than twenty-five years, or more than forty.
3. An improvement to be charged as above, with consent of trustees, on certificate from a surveyor approved by the In-



closure Commissioners, or the Court of Chancery, that it is beneficial to the estate, and that the works have been properly carried out.

4. That where the limited owner acts with the consent of the tenant-in-tail being of full age, the certificate of a surveyor may be dispensed with, unless refused by incumbancers after notice given; and the repayment of charge may be spread over a period of forty years.

5. Trustees to have liberty to defend the inheritance either at law or in Parliament, with leave of the Court of Chancery first obtained, and to be allowed to charge on the estate costs approved by the Court.

We assume, in reference to this Report, that the Lords' Committee have considered the matter from a proprietary point of view, but it is also fair to assume that they have taken into their consideration general interests. The evidence of one of the witnesses (Mr Bailey Denton), if his calculation can be received with sufficient reliance, demonstrates that out of 20,000,000 acres of land in England and the Principality but 3,000,000 have received the advantage of adequate drainage. Many years ago the Legislature recognized the necessity for making the stringent Land Laws a trifle elastic, so far that they passed an Act in 1840 which enabled that class of land-owners denominated life-owners to raise money upon their lands for the purpose of improving them permanently by drainage, but it confined its benefits entirely to drainage, and no more. If any other improvements suggested themselves to the owner, there was nothing to prevent him from accomplishing them, but he had to pay for them out of his own pocket, or in other words out of the revenue of the lands, which are very often inadequate. Many holders of property in land of this class feel the great hardship of the existing state of things, persons, for instance, whose land produces barely sufficient revenue to support his estate, and who, had they the means, could so far improve it, as to increase the revenue twofold. The owner of thriving land makes it productive because he has the

means, but the owner of equally as good land finds it sterile and unproductive, because he cannot obtain for it the material which is its life pulse; he is also surrounded by various other difficulties, his right is questionable to dig for gravel, even if he discovers it himself during his ownership; it is questionable whether or not he can open a mine unless it was discovered before he attained his possession, and generally he is so clogged with restrictions of every description, that notwithstanding his whole energy may be devoted to realizing the best revenue possible from his land, a very small—if any—margin is left for possible improvements on it. The Committee have had the benefit of the experience of Mr Caird, one of the Inclosure Commissioners, and he gives it as his opinion that not one-fifth of the improvements have resulted that should have resulted from the various Acts that have of late years been passed, but there do not seem to be any reasons given for this failure. Much importance does not appear either to have been attached by the Committee to the labour question in connexion with the inquiry, although it was admitted that many difficulties were in the way of obtaining labour, but the Committee are careful to state that the estimates submitted to them on this head are mostly of a speculative character, and are consequently but little to be relied on. The practical suggestions of the Committee among them would empower limited owners, with the consent of trustees, to expend trust funds upon the improvement of their lands on redeemable mortgages; it would also empower, where the limited owner acts with the consent of the successor in title who has obtained his majority, the dispensation of surveyors' certificates, and would distribute the time for repayment over forty years, and would also empower the life-tenant to charge his lands for the purpose of improving them, fixing the time for redemption within a period exceeding ten years of the owner's expectation of life, any such term to be not less than twenty-five or more than forty years. The law which



has for so many centuries regulated the invisible union between the State and the Land has heretofore only been productive of a deal of sterility and of much waste, and has indirectly had the effect of weakening the soil, as in many instances that occur of limited owners underletting lands for short and temporary terms to tenant-farmers, who, having no proprietary interest in the soil, have no scruple in working it to death, provided they grow crops; and it is difficult in these times to provide a motive to life-tenants to

spend money upon their land unless it be to benefit their progeny. But all life-tenants do not hold in that way: many persons have estates in land, which, at their death, devolve on persons they perhaps have never seen; and this latter class of owners have but scant encouragement to invest money in improvements. Their ownership is so easily understood in its spirit, and presents so many outward signs of prosperity, with its attendant and palpable privileges, that very few properly appreciate its impalpable disadvantages.

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### *THE SUPPLY OF HORSES.*

THE Lords' Committee appointed to inquire into the question of the supply of horses in Great Britain, has issued its Report. It will be remembered that in the early part of the session, Lord Rosebery urged before the Upper House, in a very able and exhaustive speech, the view that the British horse supply was sadly deficient in quantity, and palpably deteriorating in quality. In expounding such a theory, the noble lord undoubtedly echoed the sentiments of a large body of active thinkers in this country.

It was declared by some that our thoroughbred stock had become exceedingly poor in stamina under the influence of the turf, that good roadsters were not to be had for love nor money, while work horses in town and country were gradually dying out. Lord Rosebery, although not adopting these opinions in their entirety, made out a fair case for an inquiry into the condition of our equine stock. His "prayer" to Her Majesty, that a Royal Commission should undertake such an investigation, was not granted; but the Government, in order to dispel if possible the delusion under which they maintained Lord Rosebery existed, granted the appointment of a Select Committee. The Com-

mittee, as is well known, have examined a number of witnesses conversant with the subject, and their report summarizes the evidence adduced.

Strangely enough, their lordships have not gone into the question of racing and its influences on the breed of horses in the United Kingdom, on the plea that such an inquiry "would indefinitely prolong their labours." We had thought to receive some rather important evidence upon this head; and, in fact, had imagined that the moot point whether the turf has a favourable or an unfavourable influence upon our thoroughbred horses would be set at rest by the Committee at the expense even of an indefinite prolongation of its labours. It is satisfactory to find the following with respect to thoroughbreds, however:—"Thoroughbred horses in England have so largely increased in number and value, that questions regarding that breed did not require to be considered with the same minuteness as those regarding breeds which, it was asserted, had decreased in quantity and deteriorated in quality." The extraordinarily increased demand for purebred horses within the past few years has, no doubt, contributed almost wholly to the increment in value spoken of by the Committee,



but it does not require the eye of a *connoisseur* in horseflesh to note that the quality has kept pace with the augmentation in value. Another congratulatory feature in the report is, that the mounted portions of the army "were never better horsed than at present." The noble examiners do not agree with Mr Edmund Tattersall as to the utility of Government studs, but if we can rely upon the figures adduced by the great auctioneer, such establishments have been the means of immensely improving the breed of animals in Germany and Austria.

As to the alleged scarcity of horses in this country, the Committee, after anxious consideration, have arrived at the conclusion "that the scarcity complained of by many witnesses is not caused so much by a deficiency of number as by the supply not having kept pace with the increased demand." Thoroughbreds and hunters have vastly increased of late, and in Devonshire and Cornwall, we are informed, where there were formerly but few horses bred, great strides have been made by farmers in bringing horses into the market. "On the other hand," continues the report, "some breeds, such as the Cleveland bay and the old-fashioned roadster, appear to have become extremely rare, and in some districts of the United Kingdom breeding has certainly declined." The last statement is certainly somewhat vague. We should have liked to have seen a specification of the localities where breeding has fallen off. The following paragraphs refer particularly to a diminution which has taken place in the agricultural horses of England and Ireland:—

But the scarcity appears to be greatest of all among agricultural horses, on which the evidence is practically unanimous. The returns laid before Parliament shew that there has been a considerable decrease lately in the number of brood mares, unbroken horses, and horses used for agricultural purposes in England. In 1870 there were of this class 977,707, and in 1872, 962,548, shewing a decrease of 15,159. It seems surprising that, instead of the considerable increase which the great prosperity of the country and the consequent demand would lead us to expect, there should be this reduction in numbers. Nevertheless,

the Committee are of opinion that this scarcity of agricultural horses will gradually right itself, as the breeding of these horses is comparatively easy and inexpensive. In Ireland the complaint seems much the same, and is supported by trustworthy figures. In 1859 there were in Ireland 629,075 horses, in 1862 602,894, and in 1872 540,745, shewing that there were in 1859 88,330 and in 1862 62,148 more horses than in 1872. It is clear from the evidence that horses are bought up at an earlier age and taken out of the country, and that there has been a very extensive exportation to foreign countries. However, the recent returns shew a certain increase in the number of horses now bred in Ireland. Comparing the number of horses in the years 1870 and 1871, while there is some diminution of horses above two years old, there is an increase of 7200 in horses under two years old.

To account for the above deficiency the Committee advances the opinion of the extensive exportation of mares to foreign countries; but an inspection of the Board of Trade Returns for the past half year shews that we exported only 1195 animals. In 1871 certainly the total was much larger, being 4416, but last year that number had been reduced to 1691. Some of our best Clydesdale stallions have gone to the colonies within the past year or two, but there are still a goodly number of mares and sires in the country from which to produce useful agricultural animals. There is some truth in the surmise of the Commissioners that "the increased profits on sheep and cattle, which, from being more certain and more rapidly realized, are doubly attractive to the farmer, as compared with those obtained by the breeding of horses," has something to do with the diminished supply of agricultural horses; but it is not unlikely that the increased demand for that kind of horse makes the scarcity more apparent than real.

As to the recommendations for improving the supply of horses, the Committee suggest that the Government should give or add to prizes at agricultural shows to stallions passed sound which have covered a number of mares at a certain low price, in particular districts. There can be no doubt in the mind of any one that "agricultural societies have done great good in this way."



*THE LANDLORD AND TENANT BILL.*

THIS measure has been consigned to the tomb of the "innocents" before its time had come, and with the full consent of its parents. It was hinted by more than one person in the House of Commons who, we do not believe, cared at all for its vitality, but who would have liked to have had the pleasure of strangling it themselves—to have acted the part of baby Hercules toward the bantling—that it had been shamefully and ignominiously abandoned by its promoters. Nothing of the kind. Notwithstanding the affected surprise of some of the speakers, it was well known some time ago to most people interested in agriculture that the Bill would not be proceeded with this year, as it was certain that some of its clauses would meet with opposition too considerable at this late period of the session to admit of its passing into law before the time when Lords and Commons usually betake themselves to the moors. It would have served little practical purpose to have persevered with the Bill. It would, in fact, have been a simple waste of time so far as legislation is concerned, and any discussion evoked on the subject would not have contributed much to the knowledge we already possess. Those who would have been likely to take part in the debate on the floor of St. Stephen's have already enunciated their views more or less clearly or hazily as the case may be, in chambers of agriculture, farmers' clubs, and on public platforms. Mr Sewell Read did quite right in the name of his colleague and on the part of himself to keep back the Bill for another session.

We should have been glad, however, to have heard the views of the Government upon the measure which the Home Secretary said he was prepared to explain at once. Most of the members of Government have an opportunity of meeting their constituents

during the recess; would it be too much to ask one or more of them to narrate the opinions of the Cabinet about the vexed question of Land when they give an account of their Parliamentary stewardship? If they would do this, it would be of great assistance to Mr James Howard and Mr Clare Sewell Read, who could alter the details of their Bill during the Parliamentary holidays. This would save the time of Parliament, both on the second reading and in Committee. Another thing which Government ought to secure, if they have any love for the Bill, is that it shall have a day set apart early in the beginning of next session for its consideration, and its promoters should not allow themselves to be trifled with this year in the same manner as in the present session. The Government has committed itself to having definite views on the matter, therefore there can be no excuse for them not giving the earliest possible expression thereto, and by so doing enable farmers to know what policy to pursue in the interregnum. The Government may rest assured that the consideration of the matter of compensation for unexhausted improvements cannot much longer be delayed; neither can the question of game. We are by no means impressed with the inflammatory articles that appear in various newspapers about the heinousness of the landlord having the right to shoot over his tenant's land, provided he has so contracted for it in England, and not signed away his rights in Scotland. At the same time, we hold to the belief that it would tend to promote harmony among landlords and tenants if the former were to surrender the ground game. Hares and rabbits in many parts of the country are, to put it as mildly as we can, a detestable nuisance, and ought certainly to be left to the "tender mercies" of those who cultivate the



soil. Winged game most farmers will cheerfully leave to their landlords, and the concession of hares and rabbits by the latter (if they do not want *battues*), will, we are certain, never diminish the chances of fair sport on any occupancy. From our general acquaintance with farmers, we have no hesitation in saying they would be pleased to shew their proprietors, while taking care of themselves, that they could leave them ground game sufficient to test the skill of any sportsman whose ambition was more subtlety about the haunts of the creatures, and precision of aim, than a big bag. And even if the landlords were to concede the winged game, we do not think (always omitting the *battues*) that they would ever risk the chance of missing an honest day's sport.

The game question, about which the Select Committee's Report is shortly promised, ought to form an integral part of the new Landlord and Tenant Bill. We do not want so many separate statutes about matters which are intimately associated with each other. Unexhausted-improvements'-compensation goes hand-in-hand with game—hard-in-hand with all other grievances in connexion with land.

The orders in council about cattle diseases are legion, their import utterly confusing to those who are appointed to administer the law. A consolidation and condensation of all the watery words in the Gazette upon contagious diseases in animals for the last seven or eight years, is much needed. For the reason that we should like to see law simplified as much as possible, we do not regret that the Landlord and Tenant Bill was postponed on the appeal of its framers. But we shall certainly be annoyed if it be not brought on, with the incorporation of the Committee's views on the Game-laws, at the earliest of the meetings of Parliament next year. If Mr James Howard and Mr Clare Sewell Read let "the grass grow under their feet" during the recess, they will, to some extent, forfeit the confidence of farmers; and if landlords and farmers do not assist them, after having unanimously affirmed the principle of the Bill, to get it passed into law, the sad conclusion must be arrived at that both parties are only half-hearted in the business, and that the near prospect of a general election, not the general public good, was the motive force in its consideration "out-of-doors."

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### THE GAME-LAWS.

THE portentous labour of the mountain has at length succeeded in giving birth to a mouse of the tiniest description, long after the time it might have been expected. The poacher will remain a hero still to those of sentimental mood, and a lay-figure for electioneering ends.

Our readers are well aware that for many years we have pointed out that "the Game-laws" was only an ignorant cry; that the abolition of the statutes, in reference to game, would in no way improve the condition of the farmer; that in England, where the game

by right belongs to the tenant, the occupier is practically no better off than he is in Scotland, where the landlord is legally entitled to every winged and four-footed creature on the farm he lets. What the Report proposes to do is to strike rabbits out of the game list where in reality they never were, although the Game-laws took a kind of step-mother care over them, in the way that it is finable to "illegally" trespass in pursuit of conies. Hares, which in many localities are quite as destructive as rabbits, are still to enjoy the protection of the law. "The merry brown



hares," as Canon Kingsley calls them, are still to come leaping

Over the crest of the hill,  
Where the clover and corn lie sleeping  
Under the moonlight still.

Leaping late and early,  
Till under their bite and their tread  
The swedes, and the wheat, and the barley,  
Lie cankered, and trampled, and dead.

And still we shall have to hear about the poacher's widow sighing and uttering imprecations against the game-keeper and his employer.

A poacher's widow sat sighing  
On the side of the white chalk bank,  
Where under the gloomy firwoods  
One spot in the ley throve rank.

She watched a long tuft of clover,  
Where rabbit or hare never ran ;  
For its black sour haulm covered over  
The blood of a murdered man.

She thought of the dark plantation,  
And the hares and her husband's blood,  
And the voice of her indignation  
Rose up to the throne of God.

"There's blood on your new foreign shrubs, squire ;  
There's blood on your pointer's feet ;  
There's blood on the game you sell, squire ;  
And there's blood on the game you eat !

"You have sold the labouring man, squire,  
Body and soul to shame,  
To pay for your seat in the House, squire,  
And to pay for the feed of your game,

"You made him a poacher yourself, squire,  
When you'd give neither work nor meat ;  
And your barley-fed hares robb'd the garden  
At our starving children's feet."

Such sentiments are quite *outré*, but they pervade deeply the rural population. Mr Ward Hunt we think is very much to blame in the matter of this report. There were four draft reports made, one by himself, which has

been practically adopted, another by Mr Pell, a third by Mr M'Lagan, and a fourth by Mr M'Combie. Meanwhile we may say we lean to Mr Pell's view of the question. His proposal was that the Committee should "recommend that rabbits and hares should be taken out of the game list, and that no licence should be required in respect of taking, buying, or selling them." On the question of winged game, Mr Pell is equally sound. He says: "With respect to birds of game your Committee are of opinion that unlike ground game they subsist chiefly upon insects, seeds, or shoots of indigenous plants and trees, of which there is an abundance in certain localities, and on scattered corn, which would be otherwise lost." Had these opinions been adopted by the Committee, we believe Mr P. Taylor would have been relieved from the necessity on 10th ultimo of proposing early next session a Bill for the total abolition of the Game-laws, which will be merely a waste of breath and time. We seriously trust that Mr Ward Hunt will see it to be for the general interest to include hares with rabbits in the measure of which he has given notice for early presentment to Parliament in 1874.

The assimilation of the law of Scotland to that of England is of no practical value whatever. The lease quite overrules the tenant's right. The only good thing that the Report proposes is to make the farmer's redress for the destruction of his crops "easy and summary," by means of "arbitration;" and we are afraid that this looks much better on paper than it will prove in practice. In fact, as the *Daily Telegraph* says: The conclusions of the report are "with certain exceptions inadequate, lame, and timid."



*REAPING MACHINES.*

THE present seems a fitting opportunity for giving a short sketch about reaping machines, for which we are much indebted to Woodcroft's "Appendix to the Specifications of English Patents for Reaping Machines." Wonderful indeed are the contrivances which have been employed in cutting down the grain within the last century. Our Gallic ancestors employed a machine in the days of the Roman invasion very much after the fashion of one that was exhibited from Australia at the International Exhibition of 1862. It is in form an unwieldy cart, to the back of which a knife is affixed, or rather a series of spikes, which merely tears off the ears of the corn, straw not being a very valuable commodity in the antipodes. The heads drop down into the cart. The machine is pushed into the corn after the manner in which Bell's reaper enters the field, the bullocks or horses being yoked behind it. We do not think the machine came to much practical good, although it had an apparatus attached designed to thrash the corn as well.

In modern times the notion of a mechanical reaper appears to have first entered the brain of a Mr Capell Lloft in 1735, whose machine was a very crude contrivance. Very singular is the fashion of the knives as they are pictured by Woodcroft. Some are like scissors, some like a couple of hooks placed back to back, and made to revolve, many of the cutters are round like wheels, some squat like tubs, others triangular, many like the present knives, and some like star-fish in shape.

Since Lloft's time many attempts to secure a good mechanical reaper have been made, without any satisfactory result. The most promising machines were those of Mr Gladstone, of Castle Douglas; Mr Smith, of Deanston; Mr Kerr, Edinburgh; Mr Scott, Ormiston; Mr Dobbs, an actor in Birmingham, a new and strange

sphere for his talents; Mr Mann, of Raby, near Wigton; and the Rev. Patrick Bell, of Carmylie, Forfarshire, who in 1826 constructed a very efficient machine, which with improvements is working satisfactorily at this day. This machine is propelled through the corn by horses yoked behind it. The knives or cutters are on the reciprocating principle, and the corn is laid down in swathes by means of an endless web. This machine without doubt was the pioneer in the way of mechanical reaping. In America, Mr Hussey and Mr M'Cormick took out patents for reaping machines of a superior character in 1833 and 1834 respectively.

It was not until the Exhibition of 1851, however, that a stimulus was given to reaping machine manufacturers by the exhibition of some from America. Perhaps no machine ever wrought itself so steadily into the good graces of farmers, who are proverbially slow to change old customs. As an instance of how the contagion of their use has spread, it may be mentioned that one firm alone—Walter A. Wood, England and America—turns out considerably upwards of 20,000 per annum, and our great English manufacturers thousands upon thousands; indeed, as a rule, they cannot supply the number of machines that are annually wanted.

The movements of the cutters in the old inventions were various. A few were advancing only, some sidelong and advancing, others reciprocating and advancing, a large number continuous and advancing, and others continuous and alternate. The reciprocating and advancing motion is that now employed on all the machines in use. The principal difference in the machines now so largely used for cutting corn is in the form and character of the cutters, in the mode of delivering the grain after it is cut, and in the manner of draught or propulsion.



The cutting-knives are of two kinds—one, obtuse-angled and serrated ; the other acute-angled and for the most part plain. Both are attached to a bar, and are made to work through another bar of iron fitted with hollow fingers, called guard-fingers, which projecting forwards, catch the standing corn, and retain it firmly until it is cut. The serrated knife saws through it ; the plain knife clips it, as it were ; the finger-guard forming the fixed blade of the scissors. In the case of the serrated obtuse-angled knife a reel or a rake, either moved mechanically or by manual power, is necessary to bring down the corn to the cutter. With the plain knife, this is not so much needed ; and it can cut grass or clover, which the other cannot do satisfactorily. But the obtuse-angled knife requires less sharpening, is not so liable to choke, and takes rather less power to drive.

The delivery of the sheaves is effected either by manual or mechanical labour ; but a great proportion of the machines in use are what are termed manual delivery-reapers, although of late the self-deliverers have been more in demand. The delivery of the sheaves can be accomplished in two ways—either at the side or at the back of the machine ; but the side-delivery by manual labour has been found difficult in practice, and therefore has been almost quite abandoned. In delivering the grain, a man, with a short-handled rake in his hand, sits upon the machine behind the cutting apparatus. With this he inclines the grain towards the knife ; and when sufficient to make a sheaf has been cut, he rakes it off the platform upon the machine, on to which it has fallen, and deposits it on the ground. A good deal of skill is required in the performance of the operation. In making a neat and squarely-formed sheaf, the raker is greatly assisted by a hinge in the plat-

form, which enables him, by pressure of the foot, to tip the board over, so as to let the corn slide gently down. The disadvantage of a back-delivery is, that the sheaves must be tied up and removed out of the way of the machine before it comes round again. Such a reaper, therefore, always requires a full supply of hands to attend upon it, while a side-delivery might work for a whole day, if necessary, without more persons than the driver and the raker.

The mechanical or self-delivery machines, as they are generally called, are of two kinds—one lays the cut corn in swathes, the other deposits it in sheaves. There are several arrangements for laying it in swathes by an endless web of cloth, or by endless bands, which have now almost superseded the web, and by Archimedean screws. Web, bands, and screws all lay off the corn to the side, so that a whole field may be cut without the necessity of lifting the grain out of the track of the horses.

In the sheaf-depositing machines we have smooth arms, which bring down the corn to the cutter and rake it off the platform in sheaves. There are so many varieties of motions driving the rakes and the knives, some of them so trivial in detail that it is out of our power to explain them in the absence of drawings. The patents are so complicated, too, that several of the large manufacturers have found it advantageous to pay a royalty to one another for the use of certain parts. This is much better than going to law.

There was a splendid treat of reaping and mowing machines at the meeting of the Royal Agricultural Society at Hull, whither we hope all enterprising farmers went and judged for themselves the implements best adapted for their several occupations.



## TENANT-RIGHT ABROAD.

IN a letter to the *Standard* the Hon. W. Egerton, M.P., gives a short abstract of the answers to some of the questions put by the Foreign Office to our ministers on the Continent on the subject of the right of tenants to claim compensation for improvements. Although the principle of compensation for improvements is generally recognized, it will be seen that in no case does the law or custom go so far as Mr Howard's Bill, or abolish the right of contract.

In Belgium, where properties are generally small, certain improvements carried out without the consent of the landlord may be retained by the landlord on payment of cost price, or be removed by tenant, the tenant restoring the property to original condition; if with consent of landlord, tenant can claim to be reimbursed expenses. Usages vary in different provinces; in some the farmers have no indemnity, in others they receive value of manures, seeds, and price of tillage, on leaving their farms.

In the Netherlands, where land is held according to the civil code, like that of Napoleon, the law presumes that a landlord in letting a farm does so with the object and on the understanding that it will be used and cultivated as such, and holds the tenant bound so to use and cultivate it. Should the tenant fail to stock it or to crop it properly, or to execute the conditions of the lease, and the landlord suffer injury thereby, the latter has power to annul the lease and claim damages with interest. Improvements are made by the landlord, except where the contrary is specified in lease. Unless specially stipulated in lease, the landlord has no legal right to improvements made on the farm by the tenant. The tenant on leaving may remove all that he has erected at his own expense, provided no injury is done to the property.

In Denmark a tenant or his heirs can claim compensation for all improvements whatever effected by him which have added to the marketable value of the farm; if parties cannot agree, two arbitrators compare the previous report and inventory with the actual state of the farm. No claim is allowed after thirty years in great improvements, and ten years in small. A tenant intending to make large improvements in ground or buildings must give notice to the landlord, in order that a survey may be held, on which eventual claims for compensation are based.

In Sweden the leases are generally for a long period, or for the life of a tenant and his wife. Tenancies may be either by parol or written agreement. In almost all cases there is a provision that the tenant shall be liable to eviction for non-payment of rent, or any other breach of covenant. Improvements are generally effected by the tenant, and he is likewise obliged to maintain all buildings in the condition in which he receives them, and to build new buildings which may be needful, within certain limits. The tenant possesses no defined legal security to be compensated for improvements, and the owner possesses legal right to appropriate all improvements effected by tenant during his term of tenure. It is, however, the established practice for the tenant to be at liberty to remove the buildings he may have executed with his own materials, provided the landlord does not agree to pay the existing value of such buildings.

In Prussia compensation can only be claimed for improvements made with sanction of lessor, and the lessee can in no case compel the acquiescence of the lessor. If the estate be sold, the lessor determines the lease, but compensates lessee for improvements and unexpired portion of lease. The lessor has certain rights of distress, while the lessee can



withhold rent to satisfy claims for compensation.

In Bavaria the tenant system exists to a limited extent; no conditions can legally be presumed to have been agreed upon without a written contract.

In Wurtemberg the tenant's improvements, if moveable, may be taken away, and he receives compensation, so far as actual value of property for any subsequent tenant is thereby increased.

In Baden, where there is no agreement, all the improvements made by the tenant become the property of the landlord, without the latter being bound to give compensation.

In France the tenant can remove buildings which he has himself built, and the landlord has no claim upon buildings made by tenant, but in practice there is generally an understanding on the subject between landlord and tenant.

In Italy the value of improvements on termination of lease is determined by surveyors appointed by the Court, and when not settled by amicable arrangement, it is referred to two valuers to determine.

It is not necessary to quote the answers from Turkey, Greece, Spain, or Russia, as the condition of those countries is too different from our own.

## ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

### THE HULL SHOW.

IT was high time that some stimulus should have been given to the inert farmers in the neighbourhood of Hull, where some of the most prolific soil in this country is to be found. The lands which have been "warped" from the Ouse are not, as a rule, farmed as they ought to be. There is a slovenliness about many of them which is scarcely creditable to their occupiers, that is, if their leases be not too stringent in the matter of cropping. Within a range of a dozen miles of one of the most enterprising sea-ports of England, from whence more feeding stuffs for cattle are sent out than from any other town or city in the Empire, we find men drearily plodding in meadow grass with the scythe, and others, after it has been mown, laboriously tossing over the swathes with hay forks. It is almost incredible to find such a state of affairs in the region of an entrepôt, from which is embarked most of the labour-saving agricultural machinery, ordered by foreign countries. On Monday, we saw at the docks no fewer than eight truck-loads of reaping machines destined for the broad plains of Hungary and the Russian dominions; and yet we did not, with one solitary exception, notice a mowing machine in the surrounding fields. As a well-known farmer in Kent remarked, "this style of farming would scarcely pay in our county. There are too many men doing too little work. A hay-raker would save a man or two, and that is a consideration now-a-days." We agreed in the opinion. The work done by machinery in the field is better far than that accomplished by manual labour, as well as being much more speedy. In the ploughing season, the steam apparatus can get through an enormous amount of work as compared with that performed by horses, and at a much cheaper rate per acre. The great rapidity with which steam-tackle can render the ground in a fitting condition for the reception of the seed enables farmers often to escape a few days of disastrously rainy weather, and this often means a week or two more, as, after heavy rains, some



classes of land lie water-logged for a long time. The steam-plough also can work after a fall of moisture when it would be folly to put horses on the ground as the poaching with their hoofs would do more harm than good. Then in the harvest field, what marvels reapers can work in comparison alike with the scythe and the sickle. One machine, drawn by two horses, can get over a breadth of ground that could not be mown in the time by several men, and time is always money to the farmer when the in-gathering of the crop comes on.

We repeat that it was high time that the Royal Society should have visited the East Riding, in order to educate the agriculturists in the neighbourhood of Hull in the use of machinery. The Association has only visited Yorkshire three times, viz.—York, in 1848; Leeds, in 1861; and Hull, this year. The reception with which the Association met in the latter place is by no means of a character to induce them to renew their visit. There were no visible signs of welcome in the place—nothing except here and there a stray flag, which made one wonder what it did so far away from the docks—to betoken that the prime minister of agriculture (if we may be permitted the expression) in England was on a visit to the town. One would have thought that for the asking alone hundreds of bunks on board the numerous vessels in the basins would have opened readily, as did the gates of the rich robbers' cave at the "Open Sesame" of Ali Baba, and sent forth their bunting for the ornamentation of the streets. Those bunks, however, did not open—we know not whether they were requested to do so or not, but if they were, it was not the proper cabalistic word which was employed, for the streets remained almost without a shadow of a floating welcome, save over the hotel doors. And much more agreeable we are certain it would have been for many had these delusive snares never been thrown abroad to the winds to allure the unsuspecting visitor. This trap

was as scientifically concealed from the unwary as ever was the spider's parlour from the fly. You walked in under the belief that your bed might probably be five or ten shillings, and when the day of reckoning came you found it one guinea, with no remedy for the extortion. All that had to be done—that could be done, in fact—was to grin and bear, and vow that you would never set foot in the place again. From all quarters the same story of over-charges came. There was no one who did not try hard to "put it on," and in most cases they succeeded. The wise ones, and there were many, shook off the dust from their feet in Hull and went to Beverley, Bridlington, Driffeld, and other outlying quarters, where better accommodation was met with at a much cheaper rate.

There were other complaints in the show-yard at Hull, among implement makers especially, beyond those of high prices at hotels. They complained bitterly of the charges which were made for their entries in the catalogue, and alleged one and all that they had been charged twice over for the description of their articles. For instance, they had first to pay £1 for every page of the description of their stands, and beyond three lines, indicating the nature of each individual exhibit, 3s. per line was demanded, and had to be disbursed with the same *grace*, shall we call it? as the hotel bills were redeemed. The Society should see that in future the charges should be modified for stances. What is the use of their money if they do not expend it in promoting the objects for which the Society was designed—the instruction of those who live by the cultivation of the soil, and who should be so educated as to know the value of labour-saving machines, by the use of which better crops are grown, cattle reared and fed more cheaply, and the general community consequently benefited? The implement makers are, above all others, the class that ought to be encouraged instead of having wet blankets applied to them. There is £24,112 of funded capital belonging to

the Society; what better use could it be put to than in defraying some of the expenses necessarily dependent upon these exhibitions, and so aiding the science and practice of farming? It is no good having so much money lying in the funds, it would be more conducive to the interests of agriculture to have it invested in an experimental farm. We have, it is said, plenty of scientific writing in the *Journal*, why not give us the opportunity of seeing all these theories which are promulgated, tested by the stern facts of actual practice on a farm conducted by the Society? Even if it were a loss, it would be a benefit to the country. Another drawback to the pleasure of the exhibition, was an annoyance much commented upon by visitors, viz., that owing to bad arrangements, they were carried by rail a mile beyond the show-yard for no earthly reason that could be seen, beyond that of the disagreeableness of walking back. Add to the miseries we have enumerated the fact that the weather of the first two days was extremely wet, and the cogency of the old proverb will be realized, viz., that deliverance from a certain place, which shall here be unmentionable—Hull and Halifax—was something most devoutly to be wished for.

Monday after a night's rain opened rather sulkily, and the clouds, after hesitating in their drooping propensities, and struggling against the beneficial influences of the sun, finally o'ermastered him and dropped their watery contents in no stinted way. The morning of Tuesday began unfavourably, and it was fondly hoped that the day would clear up, glimpses of sunshine peeping out deceptively every now and again. But these hopes were speedily dispelled about nine o'clock, when a very heavy fall of rain came battering down upon the canvas roofs over the cattle, under which the few visitors who up to that time had entered the show took shelter. The rain was followed by a thunder-storm of a very violent character, and the showers came down at intervals heavier and heavier

up until about one o'clock, when the storm passed away; at least so it was thought by all who took an interest in the Exhibition. An hour and a half of beautiful weather succeeded, and then, heralded by a thunder-clap, once more down came the rain, in a manner in which we think it could not fall in any other place than in Hull, securing for horses and cattle an admiration similar to that which was at times too demonstrative for the imperturbable Shah. The implement sheds also were crowded by customers that were not profitable to the manufacturers on that day, and who were never likely to be. Wednesday proved a fine day, but Thursday (the great shilling day) was treacherous. Nevertheless the ladies bravely trudged through the mud, never minding their muslins, and looking, if not exactly pleased, not at all miserable, even after all the crushing they had undergone in the railway trains, the service of the North Eastern Railway being by no means of the best kind. The trains were generally late. A little foresight might have saved all the delay that was occasioned.

Hull, notwithstanding its callousness to the Royal and its rapacity towards exhibitors, must perforce be congratulated upon the success which has attended the Exhibition just finished within its confines. The number of entrants has not been quite so large as at Wolverhampton, but it is much greater than at Cardiff. Taking Yorkshire Shows of the Royal only, we note that a quarter of a century ago, when the Show was held at York, the receipts—the numbers are not given—were only £2664. At that time the sum given in premiums was £1000. At Leeds in 1861 the prize money was about £1500. This Exhibition gave an immense impetus to the Society. The admissions were 145,292, and the sum drawn at the gates £9850. At Hull the admittances were 104,598, and more season tickets were sold.

The following are the statistics of the attendance in the show-yard during the week



compared with that of the two previous years :—

MONDAY.

	1871.	1872.	1873.
	Wolverhampton.	Cardiff.	Hull.
10 o'clock.....	527	408	631
1 „ .....	2,024	1,318	1,349
4 „ .....	2,599	1,726	1,923
7 „ .....	2,654	1,809	1,963

TUESDAY.

	Wolverhampton.	Cardiff.	Hull.
11 o'clock.....	2,594	2,151	2,502
1 „ .....	5,216	6,127	4,857
3 „ .....	5,954	8,398	6,806
5 „ .....	6,928	8,877	7,218
7 „ .....	7,064	8,901	7,240

WEDNESDAY.

	Wolverhampton.	Cardiff.	Hull.
11 o'clock .....	3,315	3,603	5,551
1 „ .....	7,806	8,907	11,131
3 „ .....	10,222	11,578	12,940
5 „ .....	11,448	12,085	15,563
7 „ .....	11,514	12,124	15,614

THURSDAY.

	Wolverhampton.	Cardiff.	Hull.
11 o'clock.....	13,807	11,984	26,828
1 „ .....	34,521	26,543	36,028
3 „ .....	46,667	35,556	46,195
5 „ .....	51,839	38,538	50,079
7 „ .....	52,466	38,918	50,312

FRIDAY.

	Wolverhampton.	Cardiff.	Hull.
11 o'clock... ..	—	—	11,506
1 „ .....	—	—	19,128
3 „ .....	—	—	26,787
5 „ .....	—	—	29,239
7 „ .....	—	—	29,469

The total number at Wolverhampton in 1871 was 106,233 ; at Cardiff, 1872, 84,041 ; and at Hull, this year, 104,598.

The exhibition of implements was not nearly so large as at many of the former meetings of the Society. This is not at all to be regretted, as many of the articles exhibited in previous years can scarcely be said to have partaken of an agricultural nature. Space will not permit us to give the implements in detail, but we may be permitted to say here, however, that while there is not much novelty in the yard,

the machines and implements generally shewed lightness of draught with increased durability and cheapness.

HORSES.

We are sorry to say, for the honour of Yorkshire and the Royal, that the show of thoroughbred stallions for getting hunters was disappointing. Most people expected a better exhibition for the prizes offered—£50, £25, and £10. But others ask, why does not a society so wealthy, established for the sole object of promoting the agricultural interests, offer more than the sums we have named ? It is a common complaint that all the best horses in this country are being picked up by foreigners, and that in fact the bovine and ovine species, as well as the equine, go across the seas. With all our liberality to shahs and other potentates who visit us, we are mean to ourselves. We are killing the goose which lays the golden eggs, or if not absolutely slaughtering — metaphorically speaking — the feathered biped whose cackling saved Rome, selling it as stupidly as the old woman of Tennyson's poem did to the strangers. And if this “ penny-wise and pound-foolish ” practice goes on, we shall find ourselves in the unfortunate position of shorthorn fanciers, compelled to buy back at most enormous prices from other countries.

In the thoroughbred stallion class there were a dozen entries, and according to the judges they were a pretty good lot. Judges' opinions differ much, as all who are in the habit of attending agricultural shows well know. What is a magnificent animal to-day is to-morrow, in the opinion of other contributors, a mere “ weed.” Over and over again we have had within recent years Suffolk, Chaucer, and Dalesman, and have seen them thrown about like dice in a box, or rather out of it. At the present show the latter-named animal, a chestnut, of fine quality, with grand quarters, good middle, and nice head, was placed in the front rank, and Suffolk stood second. Major Barlow's chestnut, Chaucer, so much thought of at the Agricultural Hall, had to take third position.

We did not at all like the hackney-getting stallions above 14 and not exceeding 15 hands high. They seemed altogether a job lot, with the exception of those which gained the awards. Out of the seventeen entered it seemed to us that there were fully one-half that shewed the

stamp of not over-excellent Suffolk Punches. The first prize animal, however, belonging to Mr Robert Brown, of Great Kelk, Lowthorpe, Hull, was really a good one. Combined with style and symmetry he possessed quality, and his action was uncommonly good. He was bred by Mr M. Harrison, of Warter, Pocklington, and being only three years old, he promises to be a good one in another year. Even now he is well furnished. He is a dark brown, and is named Lord Stanley. The second premium was awarded to Mr John Charles Leake, of Low Drewton, Brough, for Young Lord Derby, a chestnut of considerable size, somewhat deficient in quality and too lengthy in the back. Every dog has its day, it is said, and the same remark, it would appear from the exhibition of the Royal Show now taking place, applies to horses. The grand old stallion All Fours, whose name, if not sounded "through all the churches," has been made known in many prize rings, only attained the position of third place. Bred by the exhibitor, Mr Hart, of Dunnington, he is out of the old Fireaway stock, and shews their characteristics. On eighty-seven well-contested battle-fields he has gained no fewer than seventy-one glorious victories, and on sixteen occasions he has come in second best. This is the first time that he has been relegated into the third position. Probably this was owing to the fact that a week or two ago he sprained one of his hind legs, and could not shew off his paces well before the adjudicators. Fireaway himself, belonging to Mr Triffit, Pocklington, in his time "played many parts" well at exhibitions, shewing himself to be possessed of grand action, quality, substance, and bone, was nearly altogether left out in the cold, getting only a commendation and a reserved number. In this class we thought a great deal of Ambition, belonging to Mr Charles Beart, of West-head Farm, Stow, Downham Market. The judges, however, did not appear to be of the same opinion, for they left him without any card, save that which denoted the number of his stall. It is to be presumed, from the way in which the judges passed him over, that the lack of quality counterbalanced the merits of his action.

There is no greater beauty in England of its kind than the pony stallion belonging to Mr Christopher Wilson, of High Park, Kendal, Westmoreland. Sir George, the name of this gem, is next to perfection. If the best judge of 10 lies had the moulding of one in their own

hands, they could hardly produce a better. With a head that the owner of Bucephalus would have envied had it been on a scale equal to his weight, it possesses an eye in which mildness and fire, when occasion requires, combine, a neck set on to shoulders of wonderful power, a grand top splendid quarters, thighs, clean hocks, and masterly fore arms, over clean and handsome legs. That our description of him may not be thought exaggerated, we may mention that this is the fourth year in which he has distanced all competitors at Royal Shows, having been first at Oxford, first at Wolverhampton; and in the same position at Cardiff as the honourable one in which he now stands. The second one, belonging to Mr Edward Henry Murfleet, of Newark, was a fair animal, but rather too long-waisted to satisfy our notion of what a pony should be. The third was only of middling calibre.

Passing on now to the mares in foal, or with foal at foot, suitable for breeding hunters, we find that there are fifteen entries, and we cannot, as a class, compliment them. There were a goodly proportion of them of inferior quality. The first prize was given to Lady Derwent, belonging to Mr Hornby, of Flotman-by-Ganton, Yorkshire. This is a nice bay mare, shewing, along with capital action, much substance and quality, well adapted for producing, with a good stallion, that which is so much wanted now-a-days—a weight-carrying hunter. The second award was made to Mr Robinson, of Leckby Palace, Assenby, Thirsk, for Go-ahead, a mare of the old stamp, that delighted our fathers' grandfathers, very thick and useful, but lacking style. The third was a nice animal, but her best days are over.

We have very little to say about the mares above 14 but not exceeding 15 hands 1 inch high, suitable for breeding hackneys, except that they were rather what one well able to judge called them, "a duffing lot." Mr Williamson, Surrey Bank, Ripon, got first; Mr Major, sen., Driffield, second; and Mr Cooke, of Thixendale, third. The pony mares numbered six, and the first prize one looked as if she had stamina and go in her. She was the property of Mr John William Johnson, of Riplingham Grange, Brough. Mr Lawton Watson's Fairy looked well, and moved with ease and speed. In the hunter class, open for mares or geldings, the show was comparatively small, and the quality not particularly good. The first prize, after



considerable indecision displayed by the awarders, was given to Mr Brunton's Joe Bennett, a decision which did not coincide with the opinions of those who viewed the animals out of the charmed enclosure, which, we may say *en passant*, was very inconveniently guarded for the public. Joe is a fine mover, but fault could be found with him for the lightness of his back rib. The "fancy" in horses had evidently made up their minds that an old winner, The Banker, belonging to Mr Armstrong, of Watt's Field, would come off triumphantly once more. The gallant bay, however, who looked so well when he was mounted by those who were acquainted with his ways, did not turn up to the expectation of the judges who mounted him. He proved in their opinion to be sluggish in action, to roll, as one of the riders described the going, as "a pig." This was the reason that he did not obtain the first place, and which consequently kept him from the grand honour and emolument of the £100 prize for the best of all the hunter classes. Mr Hornby's Spellahoe, a bay gelding, six years old, was placed second. He was a taking animal, but slightly defective in the short rib. We have seen better horses at local shows in the north than any of the hunters exhibited here. No doubt the best of the Yorkshire horses are kept back for the exhibition at Harrogate on the 5th August.

Much better than the class we have just described was the succeeding one of mares or geldings, four years old, equal to carrying 14 stone over a hunting country, and to have not less than three crosses of blood—a stipulation that would seem to indicate that our English horses had deteriorated. This class numbered twenty-five, although only two prizes—one of £35, and another of £15—were offered. The first was, after little deliberation, awarded to a very stylish chestnut gelding, the property of Major Goodleff, of the George Hotel, Huntingdon, called after the successor to M. Thiers, Marshal MacMahon. He was just a little too low in the back, and not equal to carrying heavy weights. The second was a more powerful animal, but he lacked quality. It is doubtful whether he ought to have had the position allotted to him. The highly commended animal belonging to Mr Rose was a leveller colt, a better mover, and of undoubtedly better quality.

In the three-year-old hunters there was nothing specially to note, except the fact that the best animal in the class was disqualified on ac-

count of it being more elderly than it was entered. Failing him, the judges conferred the award upon a rather nice chestnut gelding, the property of Mr Botterill Johnson, of Frodingham Bridge, Hull. The second prize, belonging to Mr Barlow, of Hasketon, Woodbridge, Suffolk, had much more style, but was lighter in frame. The two-year-olds were not possessed of any great merit. Of this class there was a fair show. Mr Musgrove's Talisman was excellent in quality, but like others scarcely promised to come up to the mark of the heaviest of hunters after the fox and the hounds. The second prize, owned by Mr Miller, was a neat animal, but rather too upright in the shoulders. The third prize was a more powerful animal, and in the sale ring likely more valuable, but in appearance he was a harness horse rather than a hunter.

Taken as a class, we must pronounce the roadsters to be of an inferior character. Out of the something like thirty entries which were made there were not above half-a-dozen that we should like to have marched "through Coventry" with. About half-a-dozen were fair, and the prize-takers may be described as of fully more than ordinary merit. Mr Matthews' fine brown mare, Ozone, was first here, and she deserved the preference she obtained. This is not the first time her subtle name has been made prominent in type, and we venture to think that if she thrive it will not be the last.

Two interesting prizes were offered. One for jackasses 13 hands high, for getting mules for agricultural purposes, and the other for mules not under 15 hands high, also for agricultural purposes. A very nice ass, between a Spanish sire and French dam, belonging to Mr Sutherland, Croydon, gained the prize. Mr Sutherland also took the principal award for the best mule, Sir H. Stracey following close upon his heels. More attention than has hitherto been paid to these much enduring and patient races, when they are well treated, ought to be given, and we are grateful to Mr Pease of Darlington, for having been so liberal as to offer £100 in prizes for the encouragement of such crosses.

Harking back to the agricultural horses, which are somewhat awkwardly distributed throughout the catalogue, we find in the class which have no special blood in their veins that there are fourteen entries, and the class generally is good. The arbitrators acted thoroughly well in



giving the principal honour to the grand compact bay, Le Bon, which took the second prize at last year's meeting of the Royal, and also second at Spalding. In both instances last season he had to compete with Honest Tom, who did not rival him this year. The second award was given in favour of a chestnut, in the ownership of Mr Statter, of Stand Hall, Manchester, a fairly topped animal, with good loins and quarters. The third prize was plain, coarse in the shoulder, and light in the thigh. Neither the first nor the second, we think, could match with one belonging to Mr Musgrave, which seemingly quite escaped the notice of the judges. This animal, although rather light in front, had a fine head, good bone, and fair action. He was winner of the fourth prize at Accrington recently. Eighteen horses were entered for the prizes offered for agricultural stallions, of two years of age. The first, a bluish roan in colour, was a very nice stamp of a horse. He had capital forearms and a full chest, but was rather light in the thighs. His action was very good. His owner was Mr Newman, of Friar's Court, Clancfield, Faringdon, Berks. The second was a stylish bay, belonging to Mr Linton, of Westwick Hall, Cambridge. He had good quarters, but was lacking round the breast. The third was but a middling animal. The aged Clydesdale stallions were fairly represented. The first honour went to an excellent dark grey, belonging to Mr Orange, of Bedlington. One of the best Clydesdales that ever we have seen is the one belonging to the Earl of Strathmore, Macbeth, a bay, of two years old. We are sorry to hear that he has been sold for £350, to go to Queensland. The price is much too small. The same nobleman also sold a filly for £150, and a yearling entire colt for £180.

#### CATTLE.

##### SHORTHORNS.

In the aged shorthorn bulls we had thirteen entries, and most of them came forward for the judges' inspection. There were some fine bulls among them, but the ruck were only middling. It was a sorrow to many of the old school that in a district so near the natal home of the shorthorn that we had not more "plums." How foolish in us was the opinion that we should have sold off some of our finest stock to America, the Canadas, and Australia! We received almost fabulous prices for many of them, no doubt, but *cui bono*? We shall have

to pay more on the other side of the Atlantic at the great sale of Mr Campbell, New York Mills, in September next, for the strains of blood we parted with, than ever we received for them, and perhaps we shall be outbidden by those who wish to keep them in the trans-Atlantic territories. Never mind, however, we must "let the dead past bury its dead," and act "in the living present" as though we wished to renew our strength as the eagle's, even at the expense of large sums of money, that we might with a little more cautiousness have saved.

Telemachus, who, our readers will remember, has long been a favourite of ours, came into the ring in rather a tired plight. His walk was by no means so stylish as it was wont to be, in truth, he sometimes looked as though he were incapable of much further service. His great merits of quality and shape however, carried him triumphantly through; and it must be said, that on the second day when he was led out he looked much more active than he did when he exhibited himself in presence of the judges. When he was in the arbiters' ring along with the others, our own opinion was that Mr Linton's Lord Irwin ought to have been before him, and the succeeding day's inspection did not alter our opinion. Lord Irwin has been so long before the public in prominent positions, he has been so often remarked upon in the agricultural journals, that we need not do more than tell shorthorn fanciers that he was looking fresher than at any time we have seen him during the last two years. He got the second prize. Mr Garpe's fine 3d Earl of Warwickshire, who took first honours at Plymouth, was only placed third. He looked well after doing his rounds of the shows. We thought a great deal of the bull belonging to Mr Musgrove, of West Tower, Aughton, Ormskirk, that gained a high commendation. He is only three years old, and possessed of grand substance and quality. Much also thought we of Major Stapylton's Colonist, which attained the same honour as that bestowed upon Mr Musgrove's animal. He is a level, deep-fleshed animal of excellent quality.

The judges, we may here state, were a very long time in giving their awards in this class, as indeed they were in all the others. It is a mistake, we think, to dwell so long upon the animals. No doubt it shews to the public unlearned in shorthorns that the judges are particularly anxious and careful to do their duty



(which they always are), but to those who do know a little about this famous breed, it seems that they occasionally "prolong the agony" beyond reasonable, or what the Scotch would call it, "tholable," bounds. First impressions are not always best, but as a rule they are, and at all events there seems little necessity, seeing that there were only three prizes, to go over and over again animals which have not the shadow of a chance of getting in the end the red, yellow, blue, or green rosette affixed to their stalls. On the other hand, however, too hasty decisions land judges into trouble, as for instance in the very class about which we have written. Almost without a glance, without a preliminary walk round, those who appeared in the ring to give judgment ordered out a big, fleshy, rather coarse bull, the property of Mr Statter, Stand Hall, Manchester. For this action they were "called over the coals" by the owner, and next morning the whole of the bulls had to be paraded over again. This was a mere farce, the judges of course did not alter their decision after a careful reconnaissance of the animal they so summarily disposed on the previous day. Such unusual scenes ought to be avoided in future. The remedy lies with the Council. If deception is practised, it should be put an end to at once with a high hand. If this be not done, the Royal may depend upon it that it will lose—its *prestige* we were going to say, but after Mr Gladstone's explanation of that word, we shall withdraw it—a portion of its great reputation among shorthorn breeders.

In the two-year-old class, Mr Browne, of Bank House, Acklington, Northumberland, obtained the first premium for a finely-fleshed animal, Duke of Aosta. Mr Sharp's Cambridge Duke 5th, a fine, evenly-topped roan, a prize-taker at the Norfolk Show, was second. We liked Heydon Duke 2d, and perhaps, had we had it our own way, he would have been higher in the prize list. He belonged to Lord Braybrooke, and in the course of the meeting was sold to Mr Green, of Colchester, for £400.

The yearlings were a numerous class, but there were not a few rough ones amongst them. Mr Linton's Sir Arthur Ingram achieved first honours in this class. He is a roan bull of much substance and good quality, but he lacked style. We liked the second prize, belonging to Sir George Wombwell, a red roan, of splendid quality, with deep, well-sprung ribs, lengthy quarters, and nice hair. This animal was third

at the Yorkshire Show at Malton last year, and he obtained first honours at York at the Christmas exhibition there. We thought the plain, red bull, belonging to Mr Lambe, Auburn, Lincoln, had more than justice done to him when he was placed third. We decidedly preferred Mr Foljambe's Sir Julius Benedict, a lengthy, level roan, which handled like a glove, who was splendidly filled up round the heart, from the hooks backward he was well made, and the twist was excellent. There is little doubt that, though defeated at Hull, he will one day be a conqueror somewhere else. There was a good bull shewn in this class by Mr Meadows, Wexford.

The bull calves were a numerous, and on the whole, a fair assortment. Here Mr Outhwaite came in first with a lengthy, level, light roan, which possessed excellent quality, but he was got up altogether too narrow, and had too much daylight underneath. The second prize, belonging to Mr Sharpley, was, to our thinking, a much better bull, although he had a barrenness across the top of the shoulder. He handled well, and had a fine cylindrical barrel, and a masculine pleasant head set upon a powerful neck. Mr Hare's third prize was a neat roan. The reserved number, belonging to Lady Pigot, possessed much merit. In this class we thought much of Telemachus 6th, a nice calf, the property of the Marquis of Exeter, which will likely take a higher position as it progresses to maturity. Mr Outhwaite's splendid large level cow, it would be almost superfluous to describe, she having obtained so many prizes at numerous exhibitions. She has great substance and fine quality, but she has not quite so much gaiety as some we have seen at former exhibitions. The first premium was awarded to her. The second cow was the first prize taker at Cardiff last year. She has not fallen off anything in excellence since then, although her merits have not been so highly appreciated by the present judges. The same animal gained second honours at the Highland and Agricultural Society's exhibition at Kelso last year. Mr Smith's third prize was a white that looked a useful animal but not very stylish. We had a good opinion of Mr Willis's Windsor Bride. She handled wonderfully well, and had a nice head and good quarters with roomy middle, and she had the merit of not being overfed. The heifers in milk or in calf were a large class, and among the number were some very prime ones. Mr Viveash



in this class obtained first for his Mary Ann, an animal of much substance, well filled up from the hooks backward, uncommonly developed just behind the shoulder, and level all over. She did not handle quite so well as some of those in competition with her. Mr Foljambe's second prize animal was a better toucher. She had a pleasant head, a fine middle, but wanted a little furnishing in front. She was second at Doncaster. Mr Garne's cow, Butterfly Duchess, which received third, was an excellent animal, and it was the opinion of several people that she might have been farther advanced. In the yearling heifer class, the entries numbered twenty-six. The chief honour in this section was awarded to Lady Pigot, for a red and white of splendid substance and quality, deep brisket and good head, but she might have been improved from the hooks backwards. Mr Dudding's second was a pretty red, whose merits had been recognized at Vienna by a first prize. Mr Outhwaite's third prize was a level good beast, somewhat hard to the touch. One of the gems of the show was to be found among the heifer calves. This animal, belonging to Lord Sudeley, is one of the best seven months calves we have ever seen. It has grand hair, and in all parts is admirably furnished in every point, attractive to the eye of those who look for meat as well as symmetry. We understand that his lordship has refused a large sum for her, and he was right. If she thrive, as she promises to do if not too much pampered, she will make a grand cow. Mr Miller's calf, which received second prize, should not have been so high on the list. It is a large animal, but is lacking in quality. We should have preferred one or two others before her—Sir George Wombwell's neat and well haired calf to wit. Her Majesty the Queen exhibited for a commendation in this class.

#### HEREFORDS.

The aged Hereford bulls were a particularly good class, the first prize being exhibited by Mr Philip Turner, Leen, Pembridge, who has often been a successful prize-taker. This animal, which possesses rare quality and good substance, was placed in the second position at Cardiff last year. He easily beat the first prize one at Plymouth, belonging to Mr Spencer, of Lancadle, Glamorganshire, that was placed in the second position here. Mr Spencer's beast is bare on the top of the shoulder, but otherwise a nice level bull.

The highly commended animal owned by Mr Carwardine, was a more massive bull, but plain. The whole class good. In the two-year-old bull class, Mr Edwards, of Wintercot, Leominster, succeeded in taking the first prize with an animal of uncommonly good quality, an admirable middle, and fine head. Mr Evans, of Llandowlais, gained the second prize for a lengthy, level animal, of excellent quality, but rather light in the body. The next class of yearlings was a very fair one. Mr Bailey, of Rosedale, exhibited an animal with a fine barrel, excellently filled round the heart, lengthy quarters, and a stylish head. The second prize went to Mr Lister, of Cefn Ila, Monmouthshire, for an animal possessing fully better quality than the first, but not quite so stylish nor so substantial. The Queen received the third prize, and it was thought by many that Her Majesty might have been placed in a better position. The third is a full-bodied animal, shewing in head and quality the best characteristics of a Hereford. It was exhibited at Cardiff where it gained the same position, the only fault—if fault there were—being that it appeared slightly too short and thick in the neck. In the bull calf class, the indefatigable Mrs Edwards was first with a wonderful animal, in which size, quality, and symmetry, were all combined. This is one of the most promising youngsters that we have seen. The second prize, belonging to Mr Hinckesman, was a very handsome animal, but lacking the substance of the first prize. The cows were an exceptionally excellent lot, although not numerous, as evidenced by the judges attaching honourable cards to all. The first prize belonging to Mr Peren, of Compton House, Somerset, was one of the best females that we have seen. She took a like honourable position at Cardiff, and undoubtedly would have obtained a similar honour at the Bath and West of England Society this year had she been present. She is very level along the top, and her underlines are beautiful. The second prize was awarded to a massive cow belonging to Mr Turner, Frodesley, Salop. This animal was a little hard to the touch. As an extraordinary circumstance, we may state that we had from the north entries in the yearling bull and in the heifer-in-milk class, exhibited by the Earl of Southesk, who, since the decimation of his polled herd, has taken a fancy to Herefords. He has in his possession something like fifty animals, and his exhibits at Hull shewed that



the other lot can thrive well so far north. His bull gained the first prize for a heifer in milk. His bull was only a middling kind of animal. The yearling heifers were a capital show, Mr Turner here coming in first with a very shapely, sweet animal of rare quality, which was first at the Bath and West of England Society's Show this year. The same gentleman gained the second prize, thus standing in exactly the same position as he did at Portsmouth. The Queen exhibited in this class, and only obtained a high commendation, although one of the animals was liked better than the third prize, which was rather plain in appearance. In the heifer calves Mr Turner came again to the fore, with an animal having rare quality, a fine head, good middle, but slightly coarse about the tail top.

#### DEVONS.

The Devons were a capital lot so far as they went, which was not very far. It is doubtful whether the Society is quite justified in offering so many premiums for this class of cattle when they are so far from home. For prizes amounting to £30, only three animals competed, and two premiums were awarded. The first went to a splendid bull belonging to Viscount Falmouth—a perfect type of what a Devon ought to be. He was lengthy and deep, with great gaiety of style, and standing well on short legs, besides shewing fine bone, and possessing a beautifully-formed head. This animal took the first prize at Penrhyn. The second prize, belonging to Mr Farthing, Stowey Court, was also a very good one, having been first at Cardiff, and obtaining a like position at Plymouth. In the two-year-old bull class there were only two entries, viz., Her Majesty the Queen and Mrs Davy. The last-named easily obtained the first prize, with a bull of admirable quality. He had a fine straight back, well-sprung ribs, and head neatly set on. Her Majesty's exhibit only received a commendation, although there were three prizes at the disposal of the judges. Mr Farthing was accorded the best position in the yearling bull class. In bull calves, Mrs Davy exhibited a highly promising animal of its breed. With admirable quality, this young bull possessed great substance, fine upper and underlines, and a good characteristic head. Mr Farthing's bull was placed second. The same remarks as to the paucity of numbers in the bull section apply to the entries in the cow classes, but the

quality of the females was quite as good as that of the male lot. The first and second cows at Plymouth stood in the same position at Hull—Mr Senior and Mr Smith being respectively first and second. A splendid animal in the heifer class, exhibited by Mrs Davy, gained the first prize against such excellent breeders as Messrs Smith, Farthing, and Turner. The whole class was commended. Great excellence was shewn in the yearling heifer and heifer-calf classes. In the latter class we may particularly mention Mrs Davy's little gem which obtained the first award.

#### OTHER ESTABLISHED BREEDS.

The Jersey and Guernsey cattle were extremely good, as all admirers of these milk-giving breeds will at once know, when we mention the names of Mr Simpson, Mr Gilbey, the Rev. Mr Watson, and Mr Maindonald, the Plymouth prize takers, were here entered. The Galloways were very well represented as to quality, but they were few in numbers. In the old bull class there were only two animals exhibited. Mr Graham, Parcelstown, Cumberland, obtained the first prize with a grandly filled up bull, possessing a good head and great quality. Mr Fisher's second has character, but is lacking in weight. Mr Raine, of Low Wandwood, Cumberland, exhibited a beautifully level cow with excellent hair. This animal is a very pure type of the Galloway. She obtained the first prize. The Duke of Buccleuch stood second. Mr Graham had no competitor in the heifer-in-milk class. For Ayrshires, there were three classes, for which two prizes of £10 and £5 respectively were offered. For the three classes only three animals appeared. Mr Statter, with a very poor lot, carried off the first prizes in the classes. Some very good Norfolk polled were exhibited, Lord Sondes, Mr Coleman, and Mr Brown being the principal exhibitors. The first-named obtained first premiums in the bull and heifer-in-milk or calf classes, and Mr Brown was first in cows. The dairy cows were a middling lot, Mr Dunn being first, and Mr Statter, second. A pair of very handsome fat bullocks were exhibited by the Messrs Martin, of Aberdeen, for prizes offered by the Hull butchers. One of these animals was as handsome a bullock as has ever been placed in a fat stock show, and although little upwards of two years old, appeared to have attained full ripeness. The pair, we understand, were sold by

Mr Knowles, to be kept on for the Christmas exhibitions. Their price was 120 guineas.

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SHEEP.

There was an extremely good exhibition of sheep. The Leicesters were well represented. In the shearling class Mr Turner took the first and third prizes, the first being a grand large symmetrical animal, and the third a middling one. Mr Borton had to be contented with a second place. The third prize belonging to Mr Turner did not shew so well as some of the others before whom he was placed. In the aged class Mr Marris shewed a fine sheep, which took first prize, Mr Borton again coming in only second. The Cotswolds formed an excellent show, several of the prize-takers at former shows this year having to succumb at this. Mr Russell Swanwick, who was so successful at Plymouth, only got honorary mention in the shearlings, and a third in the aged rams. Mr T. Brown, of Murham, with a splendid lot, carrying off all three awards, and first and second in the age. The Lincolns were a numerous and good class, Messrs Dudding taking first in the shearlings and also in the aged rams. The latter award we scarcely coincided with, Mr Marshall's second, which was first at Cardiff, appearing to be the best. Mr Byron's ewes were an even lot, of good quality. The Southdowns were well represented, the shearling and aged rams exhibited by Mr Rigden being splendidly de-

veloped. Hampshires were fair. Oxford Downs were of excellent quality, and so also Shropshires, with full entries in the latter classes. Mr Morrison, as usual, was victorious in the first; Messrs Treadwell, Wallis, Druce, and Howard in the second, and Lord Latimer in the third. The Border Leicesters shewed well up considering that they were so far away from home, and the aged animal belonging to Mr Foster was one of the best we have ever seen. The Cheviots were very fair, but not equal, of course, to those we see at some of the Beattock shows. Mr Elliot, Hindhope, Jedburgh, won easily in all the classes. His shearling ram, which gained the first prize, was scarcely quite equal, we thought, to the second. The mountain sheep made but a small entry, and there was nothing particularly noteworthy about them.

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PIGS.

There was a small but excellent exhibition of pigs. All the best breeders were represented, and as nearly all the animals have been shewn this year, we have nothing beyond general excellence to record, except the fact that the Earl of Ellesmere, who for the first time appears in the Royal catalogue, has been remarkably successful with pigs from Mr Peter Eden's stock. This gentleman, we understand, has resolved to give up exhibition for a time, and devote himself entirely to the breeding department.



*THE PLAGUE OF WILD MUSTARD IN EAST LOTHIAN.*

AT the last meeting of the Haddington Farmers' Club—Mr Robertson, Newmains, in the chair—a discussion took place in regard to the plague of wild mustard or yellow weed, which this season has sprung up with the cereal crops in East-Lothian.

Mr GEORGE HARVEY, Whittinghame Mains, said that the wild mustard was an indigenous plant in Britain, and appeared periodically in greater or less abundance among the white crops. To say that any farmer could prevent the yellow weeds from growing was ridiculous, but he found them always most plentiful when the land was in poor condition. A good dose of guano, together with a succession of two or three green crops, he believed, would completely eradicate the obnoxious plants. Hoeing, he also thought, would enable the farmer to get rid of them, for it was after cold frosty nights succeeding showers that the wild mustard got the mastery of the legitimate crops in the land.

Mr DOUGLAS, Athelstaneford, remarked that the injury caused by the wild mustard to the legitimate crops was undoubted, while it equally prejudiced the fertility of the soil. Wild mustard was a seed-producing plant, and it robbed the land of a great deal of the nutriment which under ordinary circumstances would flow to the proper crops. Indeed, he questioned whether any plant drained the moisture from the soil more than the yellow weed, which, apart from other considerations, created an injurious effect on the legitimate productions of the land. He believed that a great means of destroying the obnoxious weeds would be drilling of the wheat, oats, or barley, as the case might be, following the drill up with the horse-hoe.

Mr SHERIFF, Saltcoats, concurred with Mr Douglas in the belief that drilling followed by hoeing would, to a certain extent, remedy the evil complained of. But he thought that by sending the harrow twice over the crop when at a certain stage and the yellow weeds were yet young, would almost completely eradicate the

pest. It was well known that if a crop was thin, harrowing tended to thicken it, and that if it was too thick, harrowing thinned it. Therefore, he maintained, the crop ought to be thickly sown in order to allow a "double time" of the harrow in spring, and thus clear the ground of the weeds. His own experience corroborated this. In regard to oats, which this year were very promising, he had heard experienced farmers say that a few yellow weeds did good, as they staked up the young plants. The few yellow weeds that were not destroyed by the "double time" of the harrow might consequently prove beneficial.

Mr HARVEY combated the whole argument put forward by Mr Douglas and Mr Sheriff. The harrow went round about the wild mustard plants, and did not turn them up.

Mr DOUGLAS—Then what do you suggest?

Mr HARVEY suggested that the weeds should be rooted out by hoeing and by a succession of green crops.

The CHAIRMAN said that the wild mustard had been a nuisance and an annoyance to agriculturists for many years. A reason for this, he said, was that after a fine seed-time the soil was pulverized so finely that the small seeds of that plant were able to spring up in great abundance; and when the wild mustard did present a luxuriant growth, it took seven years to weed it out. In his own experience, he found the best means to get quit of the weed was to send women round the fields to pick it up. He disagreed with Mr Sheriff as to the efficacy of harrowing. Harrowing wheat did little or no good, and a "double time" of the harrow on oats and barley he found did injury instead of good. He explained, however, that he had thoroughly rolled the land both before and after harrowing.

Mr SHERIFF said that by rolling the ground before harrowing the soil was made so firm that the harrow could not tear the weeds out. The subject then dropped.

## The Farm.

### IMPORT AND EXPORT OF AGRICULTURAL COMMODITIES.

THE receipts of cattle during the month of June have nearly doubled the number we had to pay for in the same period last year, but they did not quite equal the consignments of 1871. In the month which has just passed the imports amounted to 20,963, in the corresponding month of 1872, 11,846; and in June 1871, to 22,407. In the six months also there was a proportional difference. The total number of oxen, bulls, and cows imported this year was 72,780. In 1872 the numbers were 50,970. In 1871 we had 78,971. The cost for the last six months for a smaller supply was much greater than in 1871. The price in round numbers for oxen and bulls was slightly over £20 per head; in 1871 it was only £16, 17s., a difference of £3, 3s. 6d. Calves were imported more largely during the month and in the six months than they were in the corresponding periods of the two years preceding. About 2500 more of these animals reached us during the first half of this year than we received in the corresponding term of last, and more than 7000 in excess of the importations of 1871. We cannot congratulate ourselves upon these importations. Protests have been lodged against the receipts of foreign cattle on the ground that they bring along with them the seeds of disease—disease which distributes its baneful effects throughout all the counties where store cattle are kept. Calves are no gain to the public, be they foreign or otherwise, when they are on the butchers' stalls. It is their slaughter which to a considerable extent enhances the price of meat. A great increase is noticeable in the importation of sheep and lambs, both in the month and six months; the numbers being for the latter period 433,331, to compare with 397,510. The expense we incurred for the first half

of this year was £883,442—half year 1872 £787,569. The sum paid per head this year was about 1s. 1d. more than in the preceding one. There has been a large increase in swine. The porkers were supposed to be at a discount. The imports in the month of June, 1871, amounted to 13,115; in the like month of 1872 they were only 1645; last month they came up to 8762. In the six months the total was 17,452, nearly five times the amount of the receipts in 1872, and about half the number that was landed on our shores in 1871. The increase in the importation of *live* animals of the kind, which some Eastern nations care not for, has not in any degree diminished the demand for bacon. On the contrary, our receipts in the half year past have amounted to 1,759,098 cwt.; in the like term of last year they were 1,218,412. The cost up to the end of June, 1872, was £2,463,027; up to the month which has expired, £3,469,525. It will be seen that the price of bacon is about 1s. per cwt. in favour of the buyers this year.

Beef salted or fresh and slightly salted came to 171,571 cwt., the cost being £344,801. Our supply of hams was much more liberal in the course of the six months than in the corresponding periods of 1872 and 1871. In fact, it was four times more than in the first half of the latter year, and a third more than in the half year which has passed. The total amount we paid for hams up to the end of June was £346,853; in the corresponding period of last year, £226,990, which is a difference in favour of the sellers of 5s. 7d. per cwt. "Unenumerated" meat (why this title?) cost £433,379, more than £320,000 of it being preserved—a much less sum, it might be noted, than was expended for the



commodity last year during the same time. We are doubtful whether the "tinned cans" will be a success in this country. English people do not apparently care to have their meat cooked before they have had it in the raw state presented to them. The falling off in preserved meat was this year upwards of £100,000. Mr James Harrison, it is stated, is about to supply us with fresh joints from Australia, at a cost much less than we can obtain them here. His method of preserving the carcasses is to place them in ice, and a continuous supply of that article is to be found during the voyage. We hope his speculation will be successful, for joints at the present time are much too dear, and we are convinced that the butchers do not make so much as they did when prices were not so extravagant. Our imports of pork were larger, and the prices for salted and fresh pork together, £368,323, £30,000 more than in the first half-year of 1872. Of poultry and game also we had more in value, £107,197, to contrast with £75,328.

There is still plenty of opportunity for enterprising "hen-wives." Year by year the idea of the advantage of poultry in the farm-yard is permeating those who have opportunity for keeping fowls. Year by year the number of people who keep poultry is increasing, but the figures in these returns speak plainly that the number of hens are not nearly so numerous as they ought to be. In the first half of the year the number of eggs we imported was 3,267,529 great hundreds, or in other words 392,103,480 eggs, equivalent to 13 eggs per man, woman, and child in the United Kingdom. The cost was £1,388,975. For butter our outlay was larger than in the corresponding period of 1872, £3,166,001 being the amount we disbursed. For cheese our expenditure was much greater than it was up to the end of June last year—£1,014,002.

Our expenses for wheat this year were heavy, amounting altogether to £12,045,660. In the corresponding period of last year they were only £9,370,163, and in 1871 half a

million less than that sum. Of barley and oats the importations were smaller, but there was an increase in price. Peas were more largely imported than in the first half of 1872. There was a large increase in wheat-meal and flour importations. The tables annexed shew the quantities of grain and the countries whence they were received, for the first six months of the present year, also the values in comparison with 1872 :—

Wheat.	QUANTITIES.	
	Six Months ended June	Six Months ended June
	30, 1872. Cwt.	30, 1873. Cwt.
Russia.....	7,908,329	5,350,047
Denmark .....	98,885	243,855
Germany .....	1,649,304	1,210,051
France .....	129,058	1,155,258
Austrian Territories ...	5,762	15,009
Turkey, Wallachia, } and Moldavia .....	489,164	244,736
Egypt.....	1,161,564	634,015
United States .....	2,930,973	7,280,630
Chili .....	664,982	623,288
British North America	162,022	550,220
Other Countries .....	436,799	1,344,159
Total.....	15,636,842	18,651,268

VALUE.	
Russia .....	£4,568,671
Denmark .....	64,852
Germany .....	1,093,390
France .....	76,760
Austrian Territories ...	3,446
Turkey, Wallachia, } and Moldavia .....	260,896
Egypt.....	586,249
United States .....	1,884,529
Chili .....	437,992
British North America	107,794
Other Countries .....	285,584
Total.....	£9,370,163

	QUANTITIES.	
	Six Months ended June	Six Months ended June
	30, 1872. Cwt.	30, 1873. Cwt.
Barley.....	7,036,697	5,444,833
Oats .....	5,632,269	5,505,091
Peas .....	454,855	694,143
Beans .....	1,622,952	1,378,607
Indian Corn or } Millet.....	8,181,066	8,123,889

£12,045,660

	VALUE.	
Barley.....	£2,729,028	£2,340,857
Oats .....	2,046,183	2,149,767
Peas .....	196,528	295,881
Beans .....	648,519	568,283
Indian Corn or Maize.....	3,052,379	2,740,600

	QUANTITIES.	
	Six Months ended June 30, 1872.	Six Months ended June 30, 1873.
Wheat Meal, and Flour. Cwt.		Cwt.
Germany .....	487,676	400,623
France .....	233,285	1,466,571
United States .....	208,428	465,339
British North America	39,385	110,367
Other Countries .....	477,310	951,094
Total .....	1,446,084	3,393,994

	VALUE.	
Germany .....	£449,485	£392,970
France.....	216,541	1,393,155
United States .....	160,413	413,013
British North America	35,151	98,596
Other Countries .....	468,093	914,825
Total .....	£1,329,683	£3,212,559

For hundreds of thousands of cwts. of potatoes that we received during the first half of last year we have had millions this. The total sum we paid up to the end of June was £1,679,422. The money would not have been grudged so much had the tubers been good, but they were not. It is pleasant to think that with a smaller acreage this year we are likely to have a larger command of good home-grown potatoes than we had last. Disease has appeared in some quarters, but not to any extent.

Bones have come to us in smaller quantities both in the month and the six months. Up to the end of June we paid £170,123; in the corresponding term of last year £319,084. For chemical manufactures "unenumerated" we paid £452,308, £40,000 less than in 1872. The supply of guano was very short in the month, but in the longer period the imports exceeded those of the preceding year. The sum we paid for this fertilizer up to the end of June was £825,627; last year it was £250,000 less, in round numbers, but the sum fell short of that ex-

ceeded in the corresponding period of 1871 about £700,000. Nitrate of soda was imported more largely this year, the sum we disbursed for this commodity being £831,125, as against £734,542.

There was a decline in the supplies of oil-cake in both the periods for which the returns are made up. The reverse is the case with cotton cake, which is growing in favour with feeders. The amount we paid for this article this year was £1,139,546. There was an augmentation in the receipts of rapeseed in the month, but a diminution in the longer term.

Although wool is considerably cheaper at home this year than last, we have had to pay for our importations about ½d. per lb. more, the average price up to the end of June being 1s. 2½d. per lb., to compare with about 1s. 2d. in the corresponding term of 1872. The following tables shew the receipts and the values for the corresponding terms of the six months of the present year and last:—

	QUANTITIES.	
	Six Months ended June 30, 1872.	Six Months ended June 30, 1873.
Wool, Sheep, and Lambs. lb.		lb.
From Countries in Europe	16,633,751	14,554,410
„ British Possessions		
in South Africa	17,375,826	17,622,963
„ British India.....	12,309,802	10,131,810
„ Australia .....	140,587,228	145,143,500
„ Other Countries ...	20,291,949	13,925,277
Total.....	207,198,556	201,377,960

	VALUE.	
From Countries in Europe	£976,520	£820,799
„ British Possessions		
in South Africa...	1,104,425	1,217,569
„ British India.....	539,667	458,253
„ Australia .....	8,750,643	9,069,180
„ Other Countries ...	908,744	646,443
Total.....	£12,279,999	£12,212,244

Our exports of butter and cheese were less in the six months than they were in the first half of 1872, the aggregate amount of money we received for the produce being £162,645 as against £180,282. The exportation of horses has been gradually declining—a fact



which will do something to make the minds of a few among us, who are afraid that we shortly shall have no equine flesh in the country, easy. In the first six months of 1871 we sent away 4416, in the same term of last year 1691, this year only 1195. The respective costs were £154,282, £92,633, and £68,113. It is a satisfaction perhaps to know that the foreigners have to pay a great deal more for the horses they have imported from our country this year than they had in the two preceding ones. In 1871 the cost for each horse was in round numbers £35, in 1872 £54, 15s., and up to the end of June this year £57.

The following tables shew the exports of wool during the past six months and the amount of money received for it. Germany

was the largest importer. United States' imports are nearly two-thirds less than in 1872.

	QUANTITIES.	
	Six Months ended June 30, 1872.	Six Months ended June 30, 1873.
Wool, Sheep, and Lambs.	lb.	lb.
To Germany.....	973,722	914,822
„ Belgium .....	817,979	380,753
„ France .....	441,292	257,444
„ United States.....	1,386,231	505,629
„ Other Countries.....	592,039	331,613
Total.....	4,211,263	2,390,261
VALUE.		
To Germany .....	£81,879	£82,327
„ Belgium .....	71,330	33,167
„ France .....	36,310	21,684
„ United States .....	101,012	39,263
„ Other Countries .....	56,537	28,188
Total .. ...	£347,068	£204,629

## HORN AND CORN.

WE could have wished that the author of a pamphlet entitled “Horn or Corn” had been less excitable in his language about farmers and farm-labourers than he occasionally shews himself to be, as there are many sensible and suggestive remarks to be found in his *brochure*, notwithstanding that he writes from an ultra-landlord point of view. The subject of Horn or Corn is one that at every period of dearth in meat or grain has engaged the attention of farmers. When meat rises high in price and corn declines, we have had for a quarter of a century advice given to the effect that to cattle, and cattle only, should we direct our attention, that the expense of ploughing ought to be eschewed and the land thrown into pasture. Such a practice, it has been contended, would also greatly reduce the expenditure for horse and manual labour on a farm; and this consideration is one of more than ordinary magnitude in the present condition of the labour question. On the other hand, when corn reaches

a high point of value, as for instance, in the time of the Crimean and the American wars, then is it urged that the plough should break up every acre fitted to grow cereals. Both systems have been adopted largely before under such abnormal circumstances, but only with the result of shewing that a mixed husbandry of stock and corn is the best adapted for this country.

We now come to consider the pamphlet whose heading we give above, and which is written by “A Cumberland Land Owner;” and we shall glance at what we consider the more sensible remarks contained therein first. With reference to capital employed in the land, we entirely agree with Mr Mechi, and indeed, with all who have taken an interest in agriculture, that it is, as a rule, much too limited to secure all the abundance which the soil could be made to yield. The writer believes that arable cultivation is continued, not because it is the most profitable, but because farmers are in the habit of occupying more

land than they possess capital necessary for its most profitable management. "My opinion is, that a man cannot make a full and safe profit with a capital less than £20 per acre; yet where, he asks, [and we are much afraid that echo alone will return answer, where?] shall we find a farmer who invests that sum per acre in his farm?" He then goes on to say, "In arable cultivation a farmer is receiving returns all through the season and at shorter periods, so that one crop provides money to take another off; in short, he can, as it were, live from hand to mouth on a comparatively less capital. It is not so, however, with a general stock farmer, who has necessarily to lie out of his capital for extended periods. From this I consider that an arable farmer can get on with less capital than a stock farmer—that the fact enables men of very limited capital to enter upon arable farms to drag out a laborious and probably miserable existence."

"This Landowner" here forgets, or perhaps he studiously avoided to notice that for the introduction of tenants with small means the landlords are mainly to blame. In fact, landlords individually have much to answer for this. Notably the Law of Hypothec in Scotland has been the means of securing places for what has not been inaptly denominated "men of straw," greatly to the detriment of the soil, and in the course of a few years, to the bankruptcy of themselves. The Bill for the amendment of this law, which was withdrawn from the House of Commons last week, we have referred to elsewhere. Under its provisions we may here remark, however, that the landlords do not get a lower rent, which a "Cumberland Landowner" assumes to be the case, but in almost every instance a higher one than he would—men of capital not caring to embark their funds in speculations where the prospects of a fair profit for honest toil are so problematical.

The pamphleteer gives pretty sound advice upon the manuring of grass land. All lands which will produce grain by certain liberal management, will, with similar management,

produce a more profitable return in grass. "There is no land which will not give grass if you have been able to obtain grain crops from it. Your own ordinary system proves it, for do you not manure your land in green crop for grain, and then lay it down in grass for two or three years in order to recruit the land, from which you take an out-crop without manure? If you attempted to take a grain crop from it year after year without manure, would you not soon find that such land would not produce grain?" "Well," he continues, "this is exactly what you do with your grass land; you rob it two or three years by taking a mown crop of hay grass, and then graze it, carrying away most of its produce to the farm-yard, and applying the manure made from that hay to your grain land, instead of giving its own produce in manure to itself." This "Cumberland Landowner" farther insists that grass land treated fairly will soon teach agriculturists that Horn is much more profitable than Corn. He maintains that it is by no means impossible to rear, maintain, and fatten stock all the year round on a purely grass farm. Cattle, he says, "thrive quite as well by being always tied up, and indeed better, than when turned out to graze. They do so perfectly well without litter; their milk is richer, more plentiful, and gives more butter. The same land will support more than double the stock by soiling and house feeding, than when stock are turned out to grass. And lastly, the accumulation of manure is both larger and more valuable per ton. In winter, the stock thrive and fatten upon cut hay, decorated cotton cake, and other foreign productions, as well as, if not better, than on turnips and more costly home-grown grain. I admit," he adds, "that this practice is new to the ordinary practice, but if we wish to thrive, we must bow to the inexorable demands of necessity. As landowners and cultivators, we must adapt our business to the demands of our customers, the same as all other manufacturers and trades are compelled to and willingly adopt."



Next, the writer points out that the consumption of meat in this country is steadily increasing. In 1870, with about 30,000,000 inhabitants, we consumed 1,364,002 tons of animal food, equal to 98½ lb. per head of the population. In the following year, the consumption was 1,447,181 tons, or 102 lb. per head, and last year a proportionate advance took place. "A Cumberland land-owner" points out, as we have often pointed out in these columns, that cattle are not only difficult to import, but there is also some danger from their importation in carrying disease into our own herds and flocks, (although the disasters attending the receipts of foreign cattle have often been much exaggerated), and that we should look nearer home for a considerable portion of the ills which bovine and ovine flesh are heir to.

And now how does this "Landowner" propose to accomplish his pet project of throwing all lands into pasture? In the most un-English and arbitrary manner possible. We must give this portion in his own words. He says:—

After studying the above remarks, the first great questions which will present themselves to both land-owners and tenants will be—which of the two systems will prove most profitable, horn or corn? If horn be most profitable to me and to the nation, how am I to carry it out? To the landowner I reply—raise your rents to an amount which will render grain growing a decided loss to the tenant, who has not cause to grow it. If the tenant throw up his farm, because he cannot, for want of capital, or otherwise will not, farm his land in grass, then take the farm into your own hands, let annually by auction the land you find in grass, top-dressing it annually with superphosphate of lime, sulphate of ammonia, or nitrate of potash. Put the ploughed land under green crop, either turnips or rape, to be eaten off by sheep, with cake at so much per head, or by your own sheep, and next year sow it down with oats, grass, and clover seeds. When ripe, sell your oats by auction, in small lots on the ground, to be taken off and harvested by the purchaser. The land which has borne a green crop the year it falls into your hand, if clean, can be at once sown down with oats and seeds. This cost will be amply repaid to you by the high price at which your grass land will in future let by auction. But never forget each year to artificial manure a certain proportion of this grass land, to keep and increase its

fertility. If you fail to let the grazing at a reserve price in any year, then take in agistment stock, but if that fail also, you must graze it yourself; any of which will pay you better than letting the land for tillage. It is computed very correctly that one careful herd is sufficient on a grass farm which, as a tillage farm, would require sixteen hands. Do not forget that land which in tillage will let for £2 per acre, will in grass yield a proportionate rental of upwards of £4 per acre.

Such an extraordinary proposal as the one made by "A Cumberland Landowner," we do not think likely to be accepted by any other proprietor in the country, and if he attempts to carry it out himself, we think he will speedily find his own land tenantless. The manner in which he speaks of farmers is by no means such as to reconcile them to the adoption of his views. He says of them that they have been guilty of raising a cry against the landed interest of the country, by attributing the little food the land yields to the fault of landlords, and by saying:—

That, in order to remedy this state of affairs, the tenants must have long leases; all so-called improvements of every description to be paid by the landlord to the off-going tenants—the value of the improvements to be decided by valuers selected by Government; that the terms of every lease shall be fixed by Act of Parliament, so that landowners shall not be permitted to let their land as they may think best; and lastly, that the tenant shall be sole owner of the game on his farm, in defiance of any agreement to the contrary made between landlord and tenant. To me, as an Englishman and a landowner, such a cry would have appeared impossible and a libel upon the integrity and good sense of the tenantry of England and Scotland, did I not see it verified and approved of by most of the Farmers' Clubs and Chambers of Commerce; confirmed also by a Bill introduced into Parliament this session for the purpose of carrying out most of these objects.

The writer is also much annoyed with the cultivators of land for seeking preservation against game, and declares that if they succeed in depriving the proprietor of his "rural pleasures," they would "drive him out of the country, and a country life, to spend his fortune in town or abroad, the same as is the case in Ireland and in France." Then he goes on:—

It is, in truth, a war of aggression, commenced and carried on by the tenants against the property and

position of the landowner. The movement, from a small beginning, has for many years been steadily progressing, piling up demand upon demand, until it has now arrived at such a point of grasping proportions and confidence, that our Parliament has been invoked to aid them in their efforts to obtain the greater share in the land, and to confirm their right by law. The example of appropriation and robbery is always infectious; so it is in this case, for the farm-labourers, seeing the determination of their masters, the farmers, to rob their landlords, think, and very naturally think, that they also have a right to part of the plunder, in an increase of wages.

We will make no comments upon these rash, shameful, and unwarrantable aspersions upon a body of respectable and intelli-

gent men, who are merely seeking, in the interests of themselves and the community, to obtain more security for the capital they invest in the soil. All we shall say is this, that the premises upon which the writer forms his notion that grass lands bring so much in the summer months when they are let is too slender a one to bear out the conclusion he arrives at, that land in pasture would produce twice as much per acre as it does in cereal crops. Farmers will pause before they make such a sweeping change in their agricultural economy, as this intemperate writer about them advocates.

### *COMPENSATION FOR UNEXHAUSTED MANURES.\**

BY MR STEWART.

HE should just mention the three points to which more particularly he called the attention of the Club. It was agreed on all hands, both there and over the whole of Scotland, that in order to keep up the productiveness of the country, it was necessary that something should be done to induce the tenant to keep up the fertility of the soil to the end of his lease. Every one felt that that could not be done under the present state of matters, and that as the lease came near its expiry, the present system of tenancy tended to lower its productiveness. It occurred to him—indeed, for many years it had occupied his mind—that there was one simple way of remedying this, viz.—that it should become a general condition in leases—a condition which he hoped would be adopted extensively—that for a certain number of years at the end of the lease, the proprietor should pay the tenant, or give certain allowance, for extra manures supplied during that period. He confessed he did not see any other way of doing it. He had

dealt with the subject according to the views that struck him as those which might be generally suitable to the district, but he was far from saying there was no other mode than that which he proposed—the remuneration for manures; on the contrary, he merely brought that under the attention of the Club, in order that the subject might be thought over, and he hoped many would consider his suggestions and be prepared to propose some other way which might be equal to, if not better, than his plan.

#### COMPENSATION TOWARDS THE END OF THE LEASE: LIMING GRASS LAND.

The question now before them was limited to three points—he meant he had taken the liberty of merely proposing in regard to arable farms that during the last three years of the lease—or perhaps it might be the last four or even five years of the lease, according to the circumstances of the farm—the tenant should be fairly remunerated for the proportion of his outlay that he had not reaped the benefit of. That was his one point—and the chief one—as to arable farms. Then there

\* Paper read before the Lockerbie Farmers' Club.



was the other matter, which was a smaller question.

In the district of Middle-Annandale they were all aware the climate was not equal to other parts of Scotland in the growing of corn, but their main dependence must be on the produce of cattle in some way or other; and he thought it was becoming more and more evident that there were a good many farms—he did not say every one—in which fields under the plough just now might be usefully left under permanent pasture. To make the most of this, undoubtedly great pains should be taken to properly manure the permanent pastures, and as that would always extend beyond the limits of an ordinary lease, the proprietor might and should give assistance as the lease ran on—the assistance to be large as it came nearer its end, and smaller at the beginning. Upon the same point of grass lands, he referred to a tract—not of what they called arable land—in the middle of the district, or more generally in the higher middle country and the eastern part of the district.

They had all probably seen the immense advantages and very substantial benefits that had been obtained from liming grass land after being drained. That had been done, many of them knew, very extensively to the east of where they were met, and the country had been rapidly changed and improved by it. To do that it required a good deal of consideration, no doubt, in making the agreements between landlord and tenant. It was evident that at the beginning of a nineteen years' lease on a number of soils, the tenant, if he limed the land gradually, would reap the benefit, and that while the lease was still running; but there were other soils, of which they saw tracts in this part of the country, which were influenced more slowly, and on which the benefits remained more permanently. In the case of these latter lands the expense was also greater. They saw after thirty or forty years that a good deal of the original benefit still remained.

PROPOSED AGREEMENT BETWEEN LANDLORD  
AND TENANT.

It evidently required a good deal of attention to propose the method by which the expense could be justly divided between the proprietor and tenant. It had been his occupation to make inquiry of the best informed and practical people on the subject, and he placed before them the three points which he had adverted to. He was far, indeed, from supposing that they were all that could be proposed or thought necessary. He would say nothing more except what had occurred to him, partly from conversation, since they met there. The objection had been made to the agreement proposed to be entered into between landlord and tenant, so as to keep up the fertility of the soil to the end of the lease, "Why, you may answer the same purpose by taking your farm three or four years before the lease expires." He had a strong opinion that such a proposal was impracticable as a general measure. He did not say that one proprietor might not agree with his tenant in such a manner, but to carry it out extensively throughout the country he thought would be found impracticable. On the large estates which composed so much of the county—such as the estates of the Duke of Buccleuch, Mr Hope Johnstone, and Mr Jardine—it very often happened that a great number of the leases were out at once. In the first place, in the case of one tenant, the landlord, several years before the expiry of the lease, might not be able to make up his mind, while he would agree with another, and having agreed with one tenant the others would be placed in a difficult and very painful position. That was one reason, but besides he thought if such a plan became general, and a tenant and proprietor did not agree as to rent, it would place them during the remaining years of the lease in an unpleasant situation. Upon this point he wished to quote the opinion of a gentleman who, at one time, acted as Secretary of the Club, and took a warm interest in it—Mr Elliot, Laighwood. He gave his opinion in stronger

language than he (the speaker) had done in his pamphlet, and it might be satisfactory to see how the matter struck a man like Mr Elliot. "As regards the different modes," Mr Elliot said, writing to the speaker, "whereby landlords and tenants might be induced to enter into leases, with the objects spoken of included in them, and as stated by you as having been suggested by some—'that there ought to be agreements for new leases made some years before the termination of those existing'—this I consider may be put out of your calculations. It may be all very well for an individual tenant and his landlord, when they understand each other, to do this, but no general rule regarding it can be laid down, and in nine cases out of ten were it attempted, it would tend rather to retard than facilitate the renewal of a lease. Suppose, for instance, that the landlord asked a rise of rent, the tenant would naturally consider that, as there was a number of years of his lease still to run, he would wait till he saw what would turn up before he promised any such rise; estrangement might easily follow, and when the end of the lease came, a renewal could not be effected. A landlord could not be made to effect this, and anything like general private agreement could never be calculated upon, neither would it be advisable, provided a plan can be adopted to induce an out-going tenant to keep up the fertility of his farm until the expiry of his lease." Mr Elliot also touched upon another point, namely, the suggestion of some that there should be re-valua-

tions of the comparative condition of the farm at the beginning and at the end of the lease. "This I hope," Mr Elliot said, "will never be followed or adopted in Scotland; it will lead to all manner of deception and heart-burning. But suppose that a farmer enters into his farm in high condition and leaves it in a reduced state, he has paid all through the lease a rent in proportion to the condition in which he found it at his entry; he has followed and obeyed every condition contained in the lease—in this case would it be fair? Would it be reasonable to assess him with damages because he has left his farm in poorer condition than he found it? Certainly not; when he had fulfilled every condition in the lease and paid rent for the land, keeping in view the high condition it was in, he has fulfilled all his obligations. On the other hand a farmer enters into a farm in poor condition, the land foul and poverty-stricken, which at the end of the lease he leaves clean and in high condition, what then?—It should be kept in recollection that he took the farm at a reduced rent on account of its poverty-stricken state, and that at the end of his lease all that he should be allowed is the value of the manure left unexhausted in the land—manure which he was not bound by his lease to apply, but which he had applied at the end of his lease over and above what his landlord had a right to require." Having stated so much of the plan he proposed, the objections he had noticed, and Mr Elliot's reply to them, he would leave the Club to make what observations they thought fit.



AUTUMN AND SPRING MANURING.\*

By J. M'CULLOCH, Stranraer.

WHETHER it is more advantageous to apply farmyard manure to the stubbles in autumn or in the drills in spring is a question of considerable importance to the arable farmer, and one on which considerable difference of opinion exists. Few consider the effects of autumn manuring equal to those of spring manuring, fewer still think them superior, and the vast majority think that the more soluble portions of the manure are washed from the soil by winter's rains at a time when the plant is not present to assimilate them, and thus what might have been useful to the crop is lost in the drains and subsoil. The more general adoption of

2 miles of the shore, and just where the greywacke joins one of the two patches of limestone to be found in Galloway. The one end of the experimental plots may be described as resting on the greywacke, and consisting of a soil of mixed gravel and earth, and the other end as on the limestone, and consisting of a soil known as greyish loam. The latter end has marl below at no great depth, and in similar portions of the same field it has been dug at a recent date. The field had lain seven years in grass, and was cropped with oats in 1870. The experimental plots (Nos. 1, 2, 3, and 4) were measured and staked off, each plot being

TABLE I.

No.	Soil.	Large.	Seconds.	Small.	Diseased.	Total.	Total per Acre.	Value per Acre.
		C. qr. lb.	C. qr. lb.	Qr. lb.	C. qr. lb.	C. qr. lb.	T. c. qr. lb.	£ s. d.
1	{ Greyish loam ... }	6 3 4	1 0 6	1 16	12 1 16	20 2 14	8 5 0 0	16 19 5
2		8 0 0	1 0 0	2 4	11 1 0	20 3 4	8 6 1 4	18 14 3
1	{ Gravelly soil ... }	8 2 8	1 1 6	2 0	14 2 22	25 0 8	10 0 2 8	21 7 0
2		6 1 18	0 2 8	1 14	11 2 6	18 3 18	7 11 1 5	15 14 3
With Superphosphate only. Same as Nos. 1 and 2		4 1 18	0 3 4	1 18	4 0 3	9 2 15	3 17 0 8	9 16 8

autumn manuring is then most probably due to the greater convenience, saving of labour, and the utilization of the available hands on the farm at a time when little needed compared with the busy months of spring. It is desirable, however, to ascertain, by experiment, how far any of these views are borne out by practical results, and to what extent the advantages counterbalance the disadvantages of each system.

The following experiments were conducted in a field about 50 feet above sea-level, within

248<sup>2</sup>/<sub>3</sub> yards in length and 19½ yards in breadth, and containing an imperial acre. On November 15 and 16, 1870, Nos. 2 and 3 were each manured with farmyard manure to the extent of 30 carts, weighing 15 cwt. each. The manure was immediately spread, and the whole four plots were ploughed 6 inches deep on November 18 and 19. The land having lain so long in grass had a tough turf, but with winter's frosts and rains, one turn of the grubber, and two or three turns of harrowing, gave it sufficient tilth to make it ready for the drill plough. On April 13, 1871, Nos. 1 and 2 were each divided into

\* Highland Society's Transactions.

23 drills of about 30½ inches in width. No. 1 had the same quantity of farmyard manure applied in the drills as No. 2 had on the surface in autumn, and both had, in addition, 6 cwt. of a superphosphate, containing 25 per cent. soluble phosphate. Both plots were then planted with sets of Regent Potatoes cut from large tubers, and as nearly as possible with one eye.

On May 18 and 19 Nos. 3 and 4 were each divided into 26 drills of about 27 inches in width. No. 4 received the same quantity of farmyard manure as No. 3 had in autumn, and both received the 6 cwt. of superphosphate in addition. Nos. 3 and 4 were then sown with Dickson's Bronze-top Swede.

*Results in Potatoes.*—On October 13 four sections, each one-eighth of an acre, were measured off, each section being intended to represent a distinct class of soil on the individual plot. The potatoes in these sections were then taken up with graips, with the results noted in Table I. Below, in the same table, will be found the results of a corresponding section outside the experimental plots, manured only at the rate of the 6 cwt. superphosphate and without any farmyard manure. The riddles used in sorting were 1 3-8 and 1 5-8 inches, and the marketable potatoes were valued at £4, the seconds at £3, and the small and diseased at £1. per ton.

*Remarks on Table I.*—The potatoes rose two or three days earlier on No. 1. Both plots were, however, strong and vigorous in growth; but the superiority attached to No. 1 increased so much that it became noticeable, even to the most casual observer. When the disease made its appearance about the middle of August, No. 1 would be 6 inches higher in the stems. The haulms of No. 2 fell first, and to that may probably be attributed its comparative freedom from disease. Previous to the attack of disease, the cover of both plots was so close that the direction of the drills was scarcely distinguishable. On the end consisting of greyish loam the greater weight ascribed to No. 2 is more nominal

than real, as far more thoroughly rotten ones were left on the ground and not included with those weighed in No. 1 than would have at least reversed their position for gross weight. This table plainly shews that the greatest weight per acre is attained through spring manuring, but that in the case of potatoes being much diseased, the autumn manuring, from its growing a sounder crop, gives the greatest money value per acre. The season of 1871 was one of the worst for disease since 1846.

*Results in Turnips.*—The turnips were topped, tailed and weighed, with the results found in Table II.

TABLE II.

No.	Soil.	Weight of Section.	Weight per Acre.	Value per Acre.
		C. qr. lb.	T. c. qr. lb.	£ s. d.
3 }	Greyish loam }	38 0 26	15 5 3 12	7 13 1
4 }		57 1 6	22 18 1 20	11 9 2
3 }	Gravelly soil }	44 0 20	17 13 1 0	8 16 7
4 }		47 0 16	18 17 0 16	9 8 7

*Remarks on Table II.*—The turnips came up regularly on both plots, but ran a narrow risk of being utterly destroyed by fly, which was very severe on turnips sown about the same time all over the country. No. 3 came slowest, and consequently suffered most, and had part sown over with hand drill. They were irregularly hoed over both plots, from June 15 to 20. At hoeing, neither plot looked well, but No. 3 a little behind. About the middle of July both plots took a start, and grew rapidly until they attained a good cover in the beginning of August. At this stage No. 4 still had the advantage in luxuriance of tops, but it was not so decidedly in favour of the spring manuring as in the experiment with potatoes. The appearance of the bulbs before weighing agreed with the results; but the crop would have been heavier all over if allowed to stand on. The position of the plots in the field, however, necessitated their removal at the date mentioned. The sections were kept clear of the re-sowing, and



There was no disease in either plot deserving notice. The practice of autumn manuring is not, therefore, desirable for turnip growing, unless, through the crop recurring too soon after a previous one, "finger-and-toe" was to be seriously apprehended. In that case, as in potatoes, it is the opinion of the writer that a lighter and sounder crop would be the result.

*Results in Wheat.*—The whole four plots were ploughed wet early in February 1872, but the presence of undecayed vegetable matter prevented the binding together, so common after wet ploughing. On April 4 and 5 the whole was sown across the plots by drill. The wheat used was April red, at about  $2\frac{1}{2}$  bushels to the acre. It came up regularly, but rather thin, and gradually became thinner through the ravages of wireworm, until in May it seemed almost ruined. This was the case irregularly over the whole four plots, but No. 3 suffered most. The wheat tillered in June, and grew so vigorously that in July it seemed as if it might still become a fair crop. The summer commencing wet, still continued so all through the flowering season, so that the hopes of a good yield grew fainter. The anticipations of good weather in a harvest following a wet summer were freely expressed; they were, however, doomed to disappointment, as the summer of 1872 turned out one of the most disastrous on record. The harvest generally commenced in the end of August, and lasted from five to ten weeks. The extremely wet weather of the second and third weeks of September was aggravated by a high temperature, and hardly a breath of wind. Sprouting, more especially among early-cut wheat, became general, so that scarcely a sample has made its appearance in the market altogether free from it. The four plots, the subject of this experiment, were cut on September 5 and 6, and No. 1 and part of No. 2 were stacked on September 23, and the rest on September 25. The thrashing was carried through on October 21 and 22, and the measuring and weighing on October

23. The straw was not weighed, owing to the labour and inconvenience of carting a considerable distance to a cart-weighing machine; but there is no question that the straw was as much heavier in proportion as the grain of Nos. 1 and 4.

TABLE III.

No.	Good Wheat.		Drawings.	Weight per Bushel.	Value per Acre
	Bush.	Lb.	Lb.	Lb.	£ s. d.
1.	26	42	42	60 ½	6 9 3
2.	22	0	32	60	5 17 3
3.	22	40	42	61 ½	5 14 3
4.	24	22	28	62 ½	5 11 3

*Remarks on Table III.*—The results are no more in favour of Nos. 1 and 4 than the appearance justified, but the whole results are disappointing in regard to yield. The double has been thrashed from no more bulk, but it is not exceptional, neither in this nor any other wet summer, to find the estimate much beyond the actual yield.

*Concluding Remarks.*—These experiments, extending over two years and comprising a green crop and a grain crop, prove satisfactorily that, as a general rule, the most profitable course is to apply farmyard manure in the drills in spring. Although the results are as a whole favourable to the practice of applying the manure in spring, yet there are exceptional cases, as in hilly and soft land, where, if farmyard manure is to be applied at all, autumn manuring becomes a necessity. It may also be resorted to in preference to spring manuring, on the score of the probability of greater profit, the risk of disease in potatoes, or "finger-and-toe" in turnips, being the course which would justify the adoption of the system. When the application of farmyard manure on the surface is considered unavoidable, the experience of the writer is in favour of the operation being delayed as far as the month of February, and the land immediately ploughed with a strong and deep furrow.

The manure applied in these experiments was that of dairy cows fed on straw and turnips only. An analysis of a similar man-

ure by Dr Richardson, as given in *Morton's Encyclopædia*, states the soluble constituents to be found in the ash at 13 per cent., and which are principally made up of potash, soda, lime, sulphuric acid, and chlorine. The average loss by applying farmyard manure

in autumn, as shewn in these experiments, is not less than 10 per cent., so that the idea expressed about the waste of the more soluble portions of the manure is borne out to a certain extent, both by analysis and by practical results.

### *ECONOMICAL FARM MANAGEMENT.\**

By Dr MONCKTON.

THERE could be no questions more full of interest to the practical farmer than those which refer to labour; and he was induced the more particularly to notice the subject from having seen an account of a recent meeting of the Tunbridge Wells Farmers' Club, where, after devoting an evening to the discussion of the subject, they arrived, it seemed, at the determination to start a Farmers' Union, in opposition to that of the Labourers. This was an important resolution originating with an important body of men, and one which they might well discuss on some future occasion. His own opinion would be against a Farmers' Union. To form such an association with the view of setting itself up in antagonism to a combination of labourers would be a mistake. He thought it would do no practical good, and would tend to make things unpleasant both to the labourer and the employer. But at the same time it appeared to him that there should be a frank, open, honourable understanding between employers of labour as to the rate of payment they made to their people, either for day labour or for piece-work; and he thought the spirit which animated persons in professions and in private life—the feeling that it was discreditable to take on to-day a man who had improperly deserted a neighbour yesterday—might be observed with great profit to farmers generally.

Men should not be tempted to desert their masters out of whim or caprice, perhaps, by the prospect of easily getting fresh employment. This would be a proper course, and it would carry with it none of that odium that might, rightly or wrongly, attach to the fact of farmers entering into a deliberate combination to foster their own interests. They might without any such organization arrive at an understanding as to how labourers ought to be contracted with—whether from week to week, or from year to year, and at what rate of wages. He would suggest that where a tenant-farmer had at command certain labourers in whom he had confidence, and who were trustworthy and valuable, that it would be a good thing to enter into yearly contracts with them. Let employer and employed feel that they were tied to each other for a year at least. He would also say distinctly let the difference be recognized between summer and winter, while piece-work should be left untouched for future consideration. He admitted that there was a difficulty in contracting with the labourer. He was generally a man of straw, and if he turned rusty and unmanageable, was not worth powder and shot; while, if he should be overtaken by misfortune, natural and Christian feeling would usually prevent the employer from pressing hardly on him. He would ask some public speakers and newspaper critics to bear in mind that the farmer was a man who could be held to his contract,

\* Read before the Maidstone Farmers' Club.



while his lien on the labourer was of the very slightest description. With regard to wages, in the case of a yearly contract, he thought 13s. or 14s. during the winter, and 16s. or 17s. in summer, would not be a bad starting point; but of course they could draw no hard and fast line as to the exact sum, which would vary with the locality and the character of the man employed.

#### LESSENING THE COST OF LABOUR.

One great means by which the farmer would save himself from being injured by a higher rate of wages, would be by improving the education of the labourer, and another they would find in the increased application of machinery to agricultural processes. Two members of the Club had set a most valuable example in this respect—Mr Chittenden for his efforts in regard to steam cultivation, and Mr Coley for the discreet, persevering, and judicious way in which he had carried out a plan that might prove to be of great advantage in the management of hops. In many respects there was a great deal to be done in the way of improvement. An experienced Sussex farmer had told him that he had never seen back the money that was spent in hand-hoeing, and in his (Dr Monckton's) opinion horse-hoeing was to be strongly recommended. These horse-hoes were introduced many years ago, but they were now rarely seen at work. Perhaps there was some difficulty in the matter, but it might, no doubt, be met by drilling wide, drilling straight, and directing particular attention to that department. From whatever cause, this particular hoe seemed to have generally fallen through, and not to be at all commonly visible. With regard to the cleaning of land generally, weeds seemed to have a wonderful knack of resisting every process brought to bear on them. It would be an interesting question to discuss how to proceed for three years to procure the greatest amount of cleanliness at the least cost. This was a practical point on which many members needed no instruction, but others, probably, would be glad to be informed.

The practice in Australia and some of the Western States of America would probably astonish them. There they sowed their wheat and disappeared till harvest time, and if the crop had not, in the meanwhile been destroyed, they proceeded to reap it at once. They drove a machine, with a horse before it, through the crop, and in a revolving cylinder there was the wheat, reaped, thrashed, and cleaned, while on the ground the straw stood, with the heads thrashed, but not taken off. They then burned this straw, perhaps over land hundreds of square miles in extent. They thus restored to the soil many important constituents of future crops, and at the same time destroyed the weeds, or a very large proportion of them. He did not think the time would soon come when an English farmer would leave his crop from sowing time in November till reaping time in August, but it was a question worthy of consideration whether much money might not be saved by sometimes letting nature have its own course.

#### EDUCATING FARM HANDS.

Passing from this he would next point to the importance of educating their men to perform more profitable work than most of them were capable of at present—they should be taught to drive steam-engines, to mend harness, to thatch, to do rough carpentering, to creosote hop-poles, to dry hops, and so forth. In this way employers would be spared the discomfort of having strangers to do their most important work, while the employed would not have the vexation of seeing strangers take the best wages. Hop-drying used always to be looked upon as a wonderful mystery, and the management of hops was not improved because it was not studied, was not considered open to competition, and, consequently, was not generally understood. If a man struck or was taken ill, there was always a great difficulty in getting any one to supply his place, although in the end some one was usually put on who was supposed to know next to nothing about it, and yet turned the hops out almost as well as the professional

dryer. This was proof positive that hop-drying was not such a recondite mystery as was generally imagined, and that they could easily multiply the sources from which dryers were to be obtained, and make the labour of the men they employed in this and other respects more profitable than at present. It was useless to say the men as a rule could not be materially improved; if they went to Australia or Canada it would soon be found what they were capable of doing in countries where farmers, or those they employed, were obliged to put up their own fences, mend their own harness, and so forth. It would also be an advantage to farmers if they were to keep maps of their farms from year to year, shewing the rotation of crops, and what was grown at a particular time in a particular field. This would be advantageous at once to farmers who had long leases, and to the successors of out-going farmers who would see what had been done with the ground for a series of years. A number of maps such as he had referred to could be lithographed at the cost of a few shillings. As to any possible improvements in the cultivation of hops, was there any reason why the hop-pole should only be creosoted for 2 feet of its entire length? Why should it not be creosoted for the whole distance? Such a plan might or might not be associated with that of keeping the poles always standing. For his own part he saw no reason if the poles were durable, why they should not be permanently placed, and if so

they would save every year a very great deal of labour. Referring to the hop harvest in East Kent, the farmers in lieu of bins had their hops picked into large baskets containing 5 bushels each, or about half a bin. He did not think this an improvement on the system in vogue here; rather the contrary, though one of its advantages was that the bine was cut high instead of being cut low down, and thus a certain amount of injury to the plant was avoided. It was also an advantage in saving a deal of trouble in the measurement. Here the measurements of different measures differed very widely, and unless they had a large number employed, which of course pre-supposed a large acreage of hops, they could not check one against another, and were rather in the dark as to what the real return should be. In conclusion, Dr Monckton suggested that it was their bounden duty and obvious interest to educate a far more numerous staff of hop-dryers than we now had, and this would at once give them a reserve of intelligent labour, and gradually lead to improvements in the mode of drying. He knew a place where drying had been rendered possible, when it would otherwise have been absolutely impossible, by doing three kilns a day. This might often be done with proper management. It was not a practice to be recommended; but they need not shrink from it with superstitious dread if at any time, from any cause, they should have a deficiency of oast room.



*LORD LEICESTER ON FARMING AND FARM LABOUR.*

AT the annual dinner of the Norfolk Agricultural Society, held lately, the Earl of Leicester generously offered a prize of £200 for the best essay on the improvement which had been effected in the agriculture of the eastern district of England during the last twenty years. His lordship also made some excellent remarks upon farming and the labour question in a speech at the banquet. The full text of the speech is as follows:—

I much regret, Earl Leicester said, that the suggestion made by his Royal Highness the Prince of Wales, at Lynn, is not likely, at present, to be carried into effect. I think that we want a more extended area than this county provides for the further development of agricultural knowledge. The mere exhibition of our own breeding stock in a county which is dependent upon the stock that is imported into it, does not provide for that agricultural knowledge which it is so important we should obtain. The manuring and cultivating of the land, and the fattening of the stock, are more important to us than breeding, and though, happily, there should be no secrets in our profession, yet we must mainly depend upon our own individual experience for what knowledge we may possess. If we could obtain the combined experience of those who have obtained the largest possible results at the least possible cost, we should find farming more profitable than it is.

I think that very considerable saving might be made in the cultivation of the land, that eventually we shall find that steam will be very effective in carrying out this object, and that by its aid we shall be able to increase our production at a diminished cost. I know the results on one farm in one season are worth very little, but during last year, when our wheats were so extraordinarily light, whether by the aid of steam, by thinner

sowing than usual, or from some other cause. I know not, I sowed my wheat at a net weight of 18 stone, which was an unusual weight for this year, and the weight did not seem to diminish the production, as I grew on the 140 acres of wheat 10 coombs 2 pecks per acre, and as probably I received 2s. 6d. a coomb more than my neighbours obtained, it would amount no doubt to 25s. clear profit upon every acre of wheat grown. I think the time has arrived when societies like this should endeavour to provide more information and something different from what has been shewn to us to-day. I think probably at present the members would not like to divert any of the funds of the association into a different course; therefore, with your permission, I beg to place at the disposal of the Committee of this Society £200, to be given as a prize for the best essay on the improvements that have taken place in the eastern district of England in agriculture during the last twenty years. I think it would be as well to take that district which the Royal Agricultural Society holds in 1874. I will now say a few words on that important subject, the labour question. I fear that my views are not in accordance with those of many of my friends. There is one friend whom I extremely regret is not present, one whose views on this question would be well worth listening to. I refer to Lord Walsingham, who begged me to express his regret that a prolonged attack of bronchitis prevented his attending to-day. I am opposed to the formation of any association that has for its object a combination of the employer against the employed. I have very much doubt whether any association can be formed of which the individual members would be united in their action, and I do not believe that any Union could be established in which every member would con-

sider the welfare of his fellow member as well as his own, and sacrifice his own interest for the advantage of all. At any rate I do not think so under such pressure as we have already received. Circumstances may arise—and I do not say that they have not arisen—when it will be found desirable that employers should unite to resist unjust demands. I have heard that in certain districts the labourers have declined to work unless all, even those almost past work, are paid like the able-bodied. Such a demand as this must be resisted, cost what it may. But on other grounds, except under urgent necessity, am I opposed to the combination of the employer against the employed. I know very well that our object would be, if possible, one of defence; but still in the very act of combination there is something antagonistic, and I should be extremely sorry that we should by any means cause any unfriendly feeling to exist towards us on the part of our labourers. I had rather unite with than against our labourers, and if they can obtain better wages elsewhere, it is our duty to assist them to go there. But I do not believe that our labourers can obtain better wages elsewhere, and I think that we in this county can afford to pay as good and better wages than the farmers of any county in England. I know of few counties where our labourers are so efficient, and I know of none where they are surpassed. But I think it would be desirable to make them still further independent by improving their social position. I believe it would be as much for our interest as it would for their own, for us landlords to build good cottages, where they can live respectably within a reasonable distance of the farms on which they are employed, and to provide allotments on those farms for those labourers who have not a garden attached to their cottages. You may remember the words Lord Derby most justly made use of at Preston—"It is the man who has laid by a little, and who is adding to it from week to week, who is most reluctant to throw away his earnings by a quarrel with his employers." There is a

very great difference between the amount of wages given in this county, and in the northern counties of England. But it is not the amount of wages only that constitute the welfare of the agricultural labourer, for, although his receipts in the northern counties of England may be considerably more than in Norfolk, yet his disbursements are considerably more also. I doubt very much whether, in the northern counties, he would find a cottage as in Norfolk, for which he would pay as rent 1s. or 2s. a-week. I saw a statement not long ago in the *Times* from a gentleman in Lincolnshire offering to give £1 a-week and 50s. for the harvest. Our Norfolk labourer would not go to Lincolnshire for that, with his £7. or £8 for harvest work lasting about twenty-one days. I believe the average weekly earnings of the labourer in this county are not far short of £1 a-week, particularly on those farms where they have the advantage of piece-work. Now, I think I have shewn you that it is our duty as well as our interest to endeavour to improve the position of the labourer, and to further his interest also. The time is, I think, approaching when out-door relief will no longer be so readily granted as it is now, and it is most desirable for the independence of the labourer that it should be so. If we are to endeavour to save him from passing his old age within the walls of the union, we must endeavour, as far as we possibly can, to encourage him to invest his savings in some society that will return him interest on a sure and sound basis. We must also endeavour to introduce him to act in the same way as all the classes above him, many of whom are not in a better pecuniary position than himself. Now, the only advice I can give you is to act as you hitherto have done, shewing kindness and sympathy towards your labourers. If you find that in some cases they abuse that power which they have recently acquired, they have plenty of examples in history before them. Be kind, gentle, and forbearing with them, and I believe that if you endeavour to raise their condition, not



finding fault with them if they belong to a union, that the position of the employer and employed will be better in the future than it has been in the past, at least in this county. And bearing in mind that if the labourers

have obtained those wages they have a fair right to expect—the market value of their work—also remember that those higher wages mean dear meat, and must also mean diminishing poor-rates.

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### *HUTCHINSON'S SOCKBURN SHORTHORNS.*

**W**E are sure our readers will be very much indebted to us for placing before them the first part of an interesting article on this subject which we have extracted from Thornton's admirably compiled Shorthorn Circular.

In 1822 there was published by Evans & Ruffy, Budge Row, London, a little book, of fifty-six pages, to which the author, Mr John Hutchinson, of Stockton-on-Tees, gave the following title, "Origin and pedigree of the Sockburn Shorthorns, with remarks and appendix, and a supplemental essay; the whole intended to elucidate many points necessary to be known by south-country breeders and amateurs." The book fairly fulfils the promise of its title; although the history of the cattle (16 pages) is somewhat overlaid and smothered by the appendix (26 pages). This gives an account of the Agricultural Society for the County of Durham; the names of its yearly officers; and the prize list, so far as the shorthorns are concerned, from 1784 to 1813. But the Supplemental Essay (14 pages) discursive as it is, seems like the postscript of a lady's letter, to contain what is now the most important information of all. The pamphlet, altogether, shews the author to have been possessed of several very important qualifications for the task undertaken. Bright, cultivated, enthusiastic in the pursuit he was, and not uncandid nor ill-natured. But he had no notion of order. So we must endeavour, giving his remarks as far as possible in his own words, to arrange them for him somewhat as fol-

lows:—First, his statements having reference to the spot; next, those relating to the cattle; then to their descent; to their personal qualifications (milking properties, weight, fecundity, and the like), and, last, his criticisms on contemporary matters, and on the traditions of the day. Mr Hutchinson dedicates his work to Sir Charles Morgan, Baronet, M.P. for Monmouthshire; who, to many claims on public gratitude—duly set forth in eulogistic language, apparently added yet one private claim to respect; inasmuch as he seems to have introduced shorthorns into the south-west of England, and to have given the author his own prices for certain animals bred from the Sockburn herd. It must be added that Mr John Hutchinson loved not only shorthorns but verse-making; and though a neighbourly critic advised him to "strike out all his foolish verses as only tending to make the book ridiculous, and the author laughed at," he was resolved to follow his own bent; and goes on to treat, like Milton, in an entirely original fashion, "things unattempted yet in prose or rhyme." It is impossible to omit this feature; for without his poetry, no faithful picture of Mr John Hutchinson or his work can be presented to the public. Indeed, by no means the worst part of his chronicle is given in the form of a song, to be sung by water-drinkers, to the tune of "Gee ho! Dobbin."

Sockburn is in the middle of a small district, yet one famed from time immemorial for the largest sheep and the best breed of shorthorn cattle in this island. The Tees,

near Yarm, taking a winding course, leaves peninsular, now in Yorkshire, now in Durham, holms of rich grazing land.

“Green grows the grass upon Sockburn’s fair pastures,  
And stoutly the blade bears the spike-furnished ear;  
Cows, calves, bulls, and heifers; ewes, lambs, tups,  
and gimmers;  
Increase—all prolific—and multiply here.”

Of all the fertile spots in the latter county, Sockburn, on the estate of Sir William Blackett, stood first. “Adorned and protected by Beverley Wood, the soil a rich gravel, warm and dry, producing heavy crops of barley and turnips, and most luxuriant pasturage,” Sockburn had a more than local repute. From its principal pasture, “The Greens,” three-year old oxen, “without corn or cake,” walked to Sunderland; weighing above 95 stone of 14 lb.; whilst the shoulder of a wether (“25 lb. of solid mutton”) was recorded (in Hutchinson’s “History of Durham”) as having been preserved, in spirits of wine, as an example of the grazing qualifications of the Sockburn meadows. The farm at Sockburn seems to have been occupied by several of the Hutchinson family in succession. Thomas Hutchinson the elder (grand-uncle of the author and his brother Thomas Hutchinson the younger) died in 1789, having two years previously taken first prize at the County Show at Durham, for a shorthorn bull, beating Mr Robert Colling of Barmpton, and others. Thomas Hutchinson the younger, brother of the author, was himself a breeder, and occupied Sockburn; he is mentioned in 1822, as being *then* of Hindwell Radnor; and as having “received lately a medal from the Board of Agriculture, for the best cultivated farm in that district.” He had previously, after a time at Sockburn, occupied a farm at Gallow Hill, near Scarborough; and had taken the first prize at Hackness for a bull of the family sort; and, of the origin of this sort, John gives the following account:—

Several years before his death, the elder Thomas became possessed of a “large yellow cow with some white. She was most remark-

able for her mellow handling.” Of her pedigree neither of the brothers could ascertain anything. But she bred, to the Dalton bull, Young Sockburn, which handed down the line; and besides, a cow which was given as a calf to her breeder’s godson (Mr Thomas Scott), and for which Messrs Robert & Charles Colling bid, in vain, 50 guineas at the time of purchasing for 30 guineas, Mr Maynard’s cow. Another of the produce of this original cow, was a cow (by her own grandson) which was sold fat to Mr Christie, “weighing 136 stone as she walked, a most remarkably small-boned cow” (a daughter of hers, Jin, was best heifer (Darlington Ward) at the Durham Show in 1795). Young Sockburn, by the Dalton bull, bred, to Mr Christopher Hill’s bull of Blackwell, the prize bull of 1787 (mentioned above); and also an own sister, called Old Sall, which “had great symmetry, a darkish red and white fleck, the white parts dappled, with a beautiful lively countenance, and fine small white horns turning a little up.” This cow was put to a son of Hubback (Mr John Coates’ bull), and the produce, Sockburn Sall, in her turn, bred, to another son of Hubback, Mr R. Grimston’s Red Sall; whose representatives, through Blanche by Belvedere, are the only ones which, as we believe, are recorded, in the direct line, in the last volumes of the Herd Book. Of all the thirty-three females (which in 1822 Mr John Hutchinson enumerated) no others have offspring now registered. This is worth noticing for two reasons:—first, as shewing what a number of well-bred animals must at different times have slipped into unregistered darkness, and then perhaps reappeared with curtailed pedigrees; and, also, because the particular family, which still continues, was less “in and in” bred than any other of the tribe, whose lineage is given by Mr Hutchinson. It is curious, too, that the two sons of Hubback, mentioned above, are the two yearlings exhibited by Mr Charles Colling in 1790, when he, for the first time, made an appearance publicly as a bull breeder; and that, thus, the Sockburn cattle



—for which Mr John Hutchinson is anxious to establish an independent origin (as, indeed, they probably had)—owe, after all, their present position among breeders, not to that independent origin, but to the subsequent infusion of the concentrated blood used by the brothers Colling, whose influence for good on the shorthorn breed of cattle every fresh investigation gives fresh evidence to establish.

Mr John Hutchinson enumerates thirty-three females; and the sires—given for those, and for the thirty-three bulls which he also names as having been bred from the original tribe—shew that resort was had to the most reputed stocks, from the earliest time. Besides the Dalton bull, and Mr Hill's bull of Blackwell, "a Dutch bred bull, sire of that other old Dutch bred bull of Mr Barker's, of Oxenfield, who begat Foljambe, the acknowledged patriarch of all the Kettons," there are mentioned, as having been in use in the Hutchinson herd, Mr Buston's Son of Styford, Windsor, Northumberland, C. Colling's Petrarch and Major, Alfred, Major Rudd's Leopold, R. Colling's Lancaster, Mason's Son of Blaize, besides a son and grandson of Punch; the last, however, was out of a Sockburn cow, and bred by one of the Hutchinsons.

Nor were the personal qualifications of the Sockburn cattle of less high claims to notice than their descent. Of the original cow we have given the only particulars known, "yellow with some white, remarkable for mellow handling." Of her daughter, Young Sockburn, Thomas the younger writes:—"She was got by the Dalton bull, was a large useful cow, had nothing very striking about her, but my uncle used to prize her highly." Of Old Sall, the third in order, by Mr C. Hill's bull, we have given part of the description; to this, Thomas the younger adds, "She was well shaped, almost symmetry! darkish red and white, flecked in equal proportions, but not in large patches; the white ~~not~~ not distinctly so, but dappled or dashed with red, like the leaves of a new-bound book." Of Sockburn Sall (the daughter

of the foregoing, and got by a son of Hubback, and the eldest recorded ancestress in the pedigree of the Blanche tribe, as it now appears) Mr John Hutchinson writes enthusiastically; we give his own words, "This cow was in all grazing points excellent. Her form was handsome, portly, and commanding, and is well remembered by many until this day. Her handling rich and mellow, and her coat like glossy velvet; *without a Highland hair* (this last phrase is given in italics). Her colour something similar to her mother's, a fine red and white fleck—the white in most parts dappled; with a fine star on her forehead, in the form of a half-moon, which last distinguishing characteristic is prevailing in her latest descendants. The fineness of her bones, her small, pale, waxy horns, black muzzle and hoofs of similar hue, and her lively looks were all admirable. Moreover, like her mother, she was a good milker. In 1797 a very large, fat Sockburn heifer, rising three years old, called Judith, supposed to weigh 90 stone at the time, was shewn for the premium for heifers at Durham, but did not succeed, Mr Robert Newby being declared the winner. Sall, a few months younger, then heavy in calf, and in an unmade-up state, happening to come along with Judith as a travelling companion, was much admired by all beholders, and particularly by the chief judge of the show, who told my brother (Mr Thomas Hutchinson) that he had certainly entered the wrong heifer, for had Sall been in the lists instead of Judith, he had assuredly carried off the prize. The following year the Sockburn heifer, Jin (spoken of before as a granddaughter of the original cow), obtained the prize, which satisfied my brother, who did not shew again till 1798, when Sall (Sockburn Sall the fourth in descent from the original yellow cow), appeared as a cow, and was signally successful. Before it was certainly known, for she was late in arriving, what might be expected from the Peninsula—whether cow or heifer, both, or neither—near a dozen cows, besides heifers, had assembled ready to contend for the respective

prizes ; but no sooner was it whispered that the Sockburn crescent, on the forehead of Sall, had appeared above the horizon of Darlington Bridge than a general panic prevailed, and when she reached the place appointed, neither cow nor heifer appeared against her—all had turned tails. The heifer prize was consequently not disposed of.”—(pp. 2 and 3.)

Red Sall (the daughter of this heroine, and like her, got by a son of Hubback) produced to Mr Wright's Checks—a premium bull at Thirsk in 1801—Roaned Heifer, which, in her turn, produced Old Roany, by Mr F. Dickson's Grandson of Punch (this bull was bred by the second Thomas Hutchinson out of a Sockburn cow, and was the one successfully exhibited by him at Hackness, in Scarborough) ; and Old Roany bred to H. Chapman's Son of Punch (apparently her own grandsire) Stranger, which John Hutchinson sold to Major Rudd. Of this cow and her sire the following particulars are given:—“ H. Chapman, Dinsdale, took, in 1801, at Durham, second prize for bulls, being beaten for the first prize by Mr C. Mason's Irishman. Great dissatisfaction attended this decision. Mr Chapman's bull was the most cleanly,

small-boned animal I ever saw. He was got by Punch, dam by Mr Robson's bull, o Dinsdale. This was a most excellent cow, and of unparalleled constitution. She produced nineteen bull calves and two heifers.” Whilst of Stranger herself, Mr John Hutchinson writes:—“ This cow, to my shame be it spoken, I sold, when rising three years old, to Major Rudd ; and a Durham gentleman handsomely spoke, at a public ordinary of breeders at Darlington, of the merits of my cow, and even carried his encomiums so high as to make comparisons not unfavourable to my cow, between Stranger and the three cows Major Rudd had just purchased for 980 guineas at Ketton. I repurchased Stranger from Major Rudd in 1810. She won a sweepstake that year against Lord Barrington's famous cow, Sir H. V. Tempest's Barmpton heifer, and four others. She produced five bulls with me, and was sold to Lord Althorpe as an old cow.” Of Ruby by Petrarch, and Tulip by Lancaster, bred the second from the first, and the first from a daughter of Stranger, it is unnecessary to speak here, because their story belongs to that of Major Rudd's than to the direct Sockburn herd.



## Random Notes.

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### BLOOD DISEASES AMONG LAMBS.

FROM various districts we learn that losses of greater or less numbers have been taking place among lambs and sheep from an affection which exhibits similar signs in both parents and offspring. In the outset it appears the lambs were first to suffer, and they gave indications of pain, lameness, and subsequently swelling in a hind or fore quarter. Somewhat later a *sero-sanguineous* or blood and water discharge issued from the affected part, and the animals die in from four to four-and-twenty hours.

In one instance that has come beneath our notice, we are informed that the lambs were finely grown and in excellent condition, and shortly after the tails were amputated the mortality took place. Later, the sheep, which were subjected to the operation of clipping, have also become affected, and after suffering in an identical manner, die off as the lambs did. From a careful consideration of the details as they have reached us, we do not hesitate to conclude the disease in both young and old animals is the same—a blood poison, known as black-quarter, quarter-felon, black-spauld, &c., which we discussed in previous issues, and to which we refer the reader for additional particulars.

It will not be without interest if we examine for a brief period what connexion there may be existing between the appearance of the disease and the operation. There cannot possibly arise any question of probability that either docking or clipping were the causes primarily; but that both were instrumental in hastening the development of conditions necessary for the outbreak of the disease, is not at all unlikely. The lambs, after losing their tails, may possibly have

moved about less, and thus favoured local congestion; and the sheep after losing their fleece, being deprived of that which requires much support, possess within themselves a larger amount of rich blood than is needed. Besides, the skin without the fleece would be less vigorous in throwing off the impurities of the body, and thus an additional cause of blood poisoning would arise. But the primary and necessary causes are of anterior date altogether. When the body is charged with a superabundance of morbid elements, many simple conditions, as operations, change of food, pasture, &c., unnoticed and innocuous at other times, suddenly swell in the list of important collateral agents in the production of general disease. There is much to be considered in relation to the food, water, manure, drainage, locality, age of pasture, &c.

### EXCELSIOR WEEDING HOOK.

The inventive faculties of mankind are strong, so much so, that the simplest operation has been provided for with a suitable



Excelsior Weeding Hook.

tool, so as to facilitate work. Here we have the imitation of the hand with its fingers spread out ready to dig into the earth to insert a favourite plant. Many in their hot haste do this without a trowel, and never think of the soiling of the hands. With this five-pronged hook, ladies may be tempted

to lay aside even the trowel, and use it as being a light thing, and good for general purposes. It will be specially so where plants are grown thickly together. The earth can be eased up, so as sun, rain, and air may each exercise their good offices.

#### WELSH'S IMPROVED WATERING CAN.

There are many ways of applying water to the drooping plant about the garden in summer. Not the least novel mode is that adopted in American gardens, and even on the Continent, as represented by the annexed engraving. Instead of carrying with the hand, the coal-heaver system of "backing" is adopted. This enables the workman to carry a larger quantity with greater ease than with the most "Perfect watering-can" ever invented. By the flexible tubing and the rose it can be sprinkled where needed; and the flow of water is regulated by a spring acted on by the pressure of the thumb. The arms are in no way fatigued, and if the article be raised in a plat, the labourer can insert them in the loops and raise himself and move forwards

with ease, if not with dignity. We don't know how our labourers would do with this new invention, but we present it as it



Welsh's Improved Watering Can.

is, as being a likely thing about a garden where water has to be carried.



## The Farmer's Foes.

### WEEDS AND HURTFUL PLANTS.

By ANDREW MURRAY, F.L.S.

**CALTHA PALUSTRIS** (Marsh Mari-gold).—Only of interest to the farmer in the fenny or marshy districts, and even there it is chiefly along the sides of ditches that it is to be seen. In Holland and in some parts of Belgium, however, it occupies a considerable space in the moist meadows. Its stem is nearly a foot high, and the large bright golden cup of its flower is a conspicuous and frequent object from afar; and

sheep eat the leaves, but to cows it has been found to be an acrid poison. It is only, however, when they have been long confined that they commit the indiscretion of giving us the opportunity of ascertaining this. Cattle and horses ordinarily will not touch it. The young buds in Holland and Germany have been pickled for capers, and the butter is said to be coloured by the pounded or expressed juice of the petals. We should doubt the possibility of their being so used, and it is not impossible that the statement that they are so used is merely a supposition hazarded from the rich golden oily colour of the flower and its superficial appearance of adaptation to such a purpose.

*Helleborus fœtidus* (Bear's-foot).—This is a garden plant rather than a field weed. It is indeed doubtful whether it is a native at all, although said to be so in Hampshire; but if not a British weed it is a hurtful plant.

The shortest way to describe Hellebore will be to remind the reader that the Christmas Rose, called also Black Hellebore (*H. niger*), from the colour of its roots, is a species of Hellebore from the South-East of Europe. The flower of the present species, instead of being white like that of the Christmas Rose, is green, with a purple margin, the leaf is pedate and digitate, or divided into linear serrated segments, and has a fetid odour, especially when crushed. The Hellebores are emetic and purgative, and have been strongly recommended and much used as a vermifuge against the large round worm (*Ascaris lumbricoides*), but, notwithstanding the authority of Pereira, we



Fig. 1.—*Caltha palustris*.

as it is a large plant with a big-tufted root usurping a good deal of space and nourishment, and does not contribute in any way to the profit of the farmer, it is desirable to get rid of it. The mode of doing so, recommended by Box, is to root it out in spring time, before flowering, with a narrow pick. Two or three years clearing in this way suffices to get rid of it for a long time. Pigs are said to eat the roots and branches, and goats and

rather prefer that of another writer, who says, "It is used by venturous quacks in decoction and coarse powder, to kill worms in the belly, which it never faileth to do: where it killeth not the patient it would certainly kill the worms, but the worst of it is, it will sometimes do both." The usual effects of taking are first a warm and somewhat biting taste in the mouth, then a cold numbness, a property common to other narcotico-acrid vegetable poisons. If the quantity taken has been considerable, pain and vomiting immediately follow. The symptoms in two cases of poisoning by the root of the Christmas Rose (whose properties are the same as those of the fetid Hellebore, only somewhat more powerful) are thus described by M. Ferrary. A domestic took a decoction of the root in some cider, at the recommendation of an empiric; and his master, from curiosity, swallowed a like dose. In about three-quarters of an hour alarming symptoms were developed, without, however, exciting suspicion of the real cause. Another glassful was taken by the servant, when vomiting, delirium, horrible contortions, accompanied with immediate coldness, supervened, and death at last ensued. The violence of the symptoms was proportioned to the quantity taken. The master died in two hours and a-half, and the servant in one hour and three-quarters after swallowing it. In another case, an individual under cure in an hospital took about half a drachm of an extract made with water from the roots of this substance. He was seized with pain and vomiting, and died in eight hours.

In animals, this species produces vomiting, or attempts to vomit, debility, vertigo, insensibility, and great torpor, and finally death. They rarely, however, eat it, unless there be a deficiency of other herbage. Dr Milne relates that once, when the ground was covered with snow, a flock of sheep, finding nothing else green on the surface, ate plentifully of it, and many of them died in consequence. A few had an emetic of oil administered to them, which cleansed their foul bosoms of

the perilous stuff, and saved their lives. It is curious to find that sheep, brought up in districts where this plant is common, will not



Fig. 2.—*Helleborus foetidus*.

touch it, while those coming from another place, where it is not met with, have to be guarded against eating it. Thus, in Belgium, the shepherds in the district of Famenne, in the province of Namur, where this plant is abundant, take special precautions whenever sheep bought in the Ardennes, in the province of Luxembourg, are brought to their district and put under their care. Before bringing out the flocks and driving them to their pasturage, where they will be apt to meet with the Hellebore, they take the precaution to gather some armfuls of it to scatter in front of the sheepfold where the sheep must pass, and to crush it under foot and mix it with the mud and dung in such a way as to bring out its repulsive odour as much as possible. The sheep, in coming out of the fold, smell the poisonous plant, become acquainted and disgusted with it, and will not afterwards touch it when they meet with it growing in their pastures. They say that, but for this precaution, which is recognized as indispensable, poisonings would take place.

The juice of the Hellebore is so corrosive that it may be used as a substitute for lunar caustic, and the root is sometimes employed



on the Continent to establish setons on swine.

The only precaution which suggests itself against this plant is to pull it up wherever it is met with. Let it be confined to our gardens, where it is under proper control.

*H. viridis* (The Green Hellebore) is similar to the fetid, but may readily be known by the flower being pale yellowish green without



Fig. 3.—*Helleborus viridis*.

any purple. Similar mischief follows from eating it, and equal care should be taken against exposing our cattle to it.

*Delphinium consolida* (Field Larkspur).—To use Mr Bentham's description, this is a common weed of cultivation in the greater part of Europe and Russian Asia, and probably of South European origin; it also occurs in North America, where it has probably been introduced. In Britain it is abundant only in some of the eastern counties, but appears occasionally in cornfields in other parts of England. It flowers with the corn or later

on the stubble. It is an erect annual, not above a foot high, with blue or reddish, or white or purple flowers. The garden Larkspur, *D. Ajacis*, is also occasionally met with in similar places.

Like the rest of the Ranunculaceæ, the Larkspurs possess certain active irritant properties. In their case these seem to be of an alkaloid nature peculiar to the Larkspurs, which has hence been named Delphinia. A tincture of the seed of this species in doses of twenty or thirty drops has been recommended in the treatment of asthma. It produces slight nausea, and in over-doses is found to be injurious. Burnett mentions that the leaves and stalks are said to enter into the composition of some cosmetics, which,

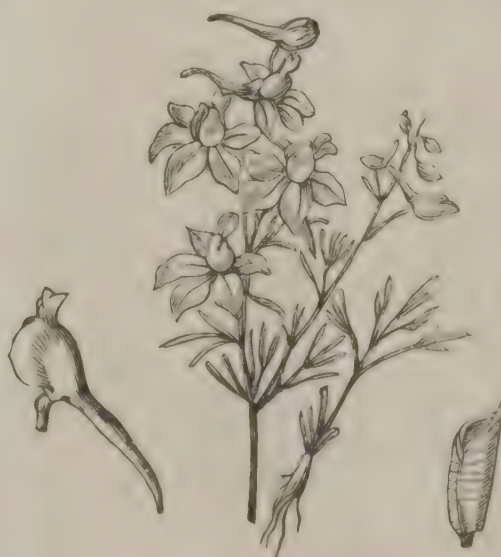


Fig. 4.—*Delphinium consolida*.

although efficient at first, are found by continued use to be injurious to the skin.

Clean seed sowed on clean land is obviously the best means of avoiding this weed. We do not suppose, however, that where it is most plentiful it occurs in such quantity as to do much harm.

*Aconitum napellus* (Common Aconite, Monkshood).—This comes under our notice rather as a hurtful plant than a weed. In Britain it is perhaps only introduced, but it is said to be perhaps wild in some shady places in Western England and South Wales.

Its range extends eastward, through Europe to Central Asia, and the habitats it delights in are moist pasture, thickets, and waste places. Into such places it finds its way in this country when it escapes from gardens. It is a tall handsome plant with a deep blue flower, distinguished by the characteristic helmet or hood from which it takes its English name.

Like the rest of the Ranunculaceae family the *Aconites* also possess acrid and poisonous properties, and like the *Helibore* superadd narcotic to its acrid qualities. It is by much the most virulent of the family, all the species, especially those belonging to the section of which the present *A. napellus* is the type, being powerful poisons. The most dreadful is the *A. ferox*, an Indian species, but *A. napellus* is quite



Fig. 5.—*Aconitum napellus*.

sufficiently deadly. It is so burning and irritating the moment it is taken into the mouth that it is surprising that any poisoning by it should ever take place. Notwithstanding this there are numerous fatal cases recorded from its having been eaten. Its leaves have been mixed by mistake in salad. Its root has been taken for Horse-radish, and tincture of its roots has been mistaken for that of Lovage. In the case of the leaves

the following were the symptoms:—The patient immediately after eating felt a burning heat in the tongue and gums and an irritation in the cheek. This tingling sensation extended over the whole body accompanied with twitchings. His eyes and teeth were fixed, his hands, feet, and forehead cold and covered with a cold sweat. No pulse could be perceived, and his breath was so short as scarcely to be distinguishable. Under treatment (emetics and ammonia) he gradually recovered. Others who had eaten leaves have not been so fortunate. The symptoms are more aggravated where the root has been used. In one case convulsions followed the early symptoms, delirium and insanity occurred in others. Indeed, mental affections of the most alarming nature seem to be one of the most characteristic features in its action, and death follows generally within a very short period. Almost everything that is poisonous is taken advantage of by the medical profession, and beneficially employed in their profession. So it is with the active principle of Aconite. It has been used as a sudorific and diuretic in small repeated doses, and has been used in paralysis and epilepsy, and rheumatic and neuralgic pains, dropsy, uterine complaints, intermittent fevers, &c.

We find no instances of cattle being poisoned by it, probably owing to the deterrent sensations arising on chewing it. The leaves also would appear like various species of *Ranunculus* to lose their poisonous properties by boiling. Linnæus mentions that he was informed by the wife of the principal clergyman of Lulea that at a certain post-house in Lapland she had seen large quantities of *Aconitum lycoctonum* collected and boiled for the use of the table like cabbage; and he adds the very necessary remark, "she was evidently acquainted with the plant;" but perhaps she was not. It would be well to make sure of it before following her example with our species.



## The Garden.

### CLIMBING FERNS.

IN the Fern house how frequently is the eye offended by bare pillars and rafters. These points of the building usually, indeed, are left to exhibit their naked ugliness, and to detract, in no small degree, from a scene where all else is chaste and beautiful. This fact would seem to be universally admitted, for in no one instance where I have pointed out to amateurs the way in which these things mar the beauty of their picture have I found them justified, and have always been met with regrets that such a state of things was unavoidable; but having myself proved that nothing is easier than to cover such objects with verdure, and convert them into lovely ornaments, I cannot accept such lamentations as an excuse.

I propose, therefore, to enumerate a few kinds of Ferns which, from the indefinite extension of their fronds, are well adapted to clothe these objectionable points in a Fern house, and at the same time treat upon any peculiarity in their habit of growth or soil required in their culture. I am fully convinced the fault really arises from want of information upon what to use and what to avoid. The plants here recommended to my readers may be used in any position, and treated as ordinary phænogamous plants, saving in the case of iron pillars, around which, as a rule, plants do not succeed. Moreover, I have a much better system for iron pillars, the details of which, however, must be treated in a separate paper.

#### LYGODIUM.

This is a very elegant genus of scandent Ferns, which are, however, not grown in half

the quantities they deserve, for, independent of the extreme beauty they display in the Fernery, their fronds are admirably adapted for twisting about the stem of an epergne or any similar ornament for the dinner-table; and as there are species to be found in this family which will thrive in greenhouse, stove, or open air, no Fern growers, however limited their space, need lack one or more of their numbers. They should be grown in soil composed of equal parts of loam, peat, and sand, and, like all other Ferns, the drainage for them must be ample, and kept in thorough working order.

*L. japonicum*.—A cool-house kind, of great beauty, very free in growth, and when thoroughly established it may be cut freely without sustaining injury; and nothing more elegant or graceful can be had for table decoration. The fronds are much branched, and of an indefinite length, pinnæ bright green, palmately lobed, and, when fertile, the sori form quite little spikelets upon the apex of the finger-like lobes. Native of Japan.

*L. flexuosum*.—This is a fine, bold-growing species, and, although somewhat too large for the general purposes of table decoration, is nevertheless one of the most beautiful plants for training upon a pillar or rafter. The fronds are sub-bipartite, pinnules narrow, from 6 to 12 inches long, and vivid bright green in colour. In the fertile ones the sori are arranged in little spikelets: these being rich brown contrast beautifully with the bright green of the fronds. It requires the temperature of the stove. Native of the Indian Archipelago.

*L. palmatum*.—In this instance the species in question is hardy, although it thrives more luxuriantly in the cool house Fernery. It is, moreover a somewhat dwarf kind, being usually seen about 2 feet high, but occasionally reaching 3 feet (Paxton, in his Botanical Dictionary, says 6 feet); notwithstanding it forms a very elegant plant in a naturally arranged greenhouse Fernery, and may be either trained upon some branches of spray wood, or allowed to fall over some jutting rock, which it will cover with a beautiful bright green drapery. The fronds are pinnate, the pinnæ palmate: a brilliant green. When fertile the upper portion becomes much contracted into linear segments, which are wholly sporangiferous. Native of North America.

*L. microphyllum*.—This is a most elegant plant, but unfortunately somewhat rare. The pinnæ are somewhat distant, pinnules long and narrow, when fertile much contracted. It is a stove species of surpassing beauty, but not particularly adapted for table decoration. Native of the Polynesian Islands.

*L. polystachyum*.—A fine bold-growing species of great beauty. The fronds are bipinnate and of an indefinite length; pinnæ 6 to 9 inches long; pinnules broad, and from 2 to 3 inches long, dentate at the edges and dark green; when fertile the sori form little spikelets, and the pinnules present the appearance of the snout of the saw-fish in miniature. It is a stove plant well deserving a place in every collection of Ferns, whether grown as a pot plant or turned out in the rockwork. Native of Penang, &c.

*L. japonicum*.—This is a fine free-growing plant, well adapted for a cool (but not a cold) Fernery. It is by some authorities considered only a variety of scandens; but, species or variety, it is sufficiently distinct under cultivation to warrant a name. The length of fronds as in most of the other species is indefinite; they are much branched, the pinnules being somewhat oblong acuminate, some 3 inches long, and bright dark green; when sterile often auriculate at the base; the sori when present is

bright brown, arranged in little spikelets upon the edges, a peculiarity which renders the members of this genus so peculiarly attractive in a fertile state. Native of China and Japan.

*Salpichlæna volubilis*.—As far as my memory serves me, there is but one species in this genus. It is nearly allied to *Blechnum*, indeed it is the *Blechnum scandens* of some authors. From that genus, however, it has been separated, on account of its having a transverse marginal vein, and also when fertile by its transverse, revolute, vaulted, and cylindrical indusium. It is a grand climbing plant, requiring a large space to display its beauty. Fronds bipinnate and bright green in colour; pinnæ nearly 2 feet long and spreading. It is a stove plant of noble port, and should find a place in every large Fernery. Pot or plant it in a mixture of two parts rough peat, one part loam, and one of sand. Native of the tropics of America.

#### LYGODICTYON.

The plants comprising this genus are exact counterparts of the *Lygodiums*, and thrive under exactly similar treatment; the chief difference lies in the veins being netted in the genus now under consideration, whilst in *Lygodiums* the veins are forked and free. It is the *Hydroglossum* of some authors.

*L. Fosterii*.—A very handsome and dense-growing plant, fronds bipinnate, much branched, indefinite in length, the pinnules bright deep green; the sori is dense and dark brown, thickly clustered round the margins, giving it the appearance of a fur-trimmed jacket, such as our blooming belles wear on a winter's morning when taking a constitutional. Native of New Zealand, &c.

*Selaginella lævigata*.—This plant is really not a Fern, but so nearly allied is the genus, and so inseparable do they seem to be with plant lovers, that the various members have come to be looked upon as true Ferns. This fact, combined with the rare beauty possessed by this plant, must plead my excuse for infringing upon the wording of my text; for,



beautiful as Ferns are, I am traitor enough sometimes to waver in my love, and yield the palm of beauty to some of the Selaginellas. However, I console myself with the fact that they are near allies, and that instead of wandering away from my old love, it is only opening my heart a little more to embrace other members, in fact, to become a general lover. I shall return to *S. lævigata*, for no more beautiful object is possible to have in a Fernery than this grand plant. It is a robust-growing scandent plant, producing stems of an indefinite length, but seldom exceeding 6 or 7 feet in length. The frondules or branches are somewhat distant, broad, flat, and gracefully spreading, the under side is green, but on the upper surface the colour is the most resplendent metallic iridescent blue imaginable. It requires stove heat, and thrives best when subjected to deep shade. It should be potted in peat, sphagnum Moss, and sand. No stove Fernery, however small, should lack this splendid plant. It comes from the East Indian Islands.

*Davallia aculeata*.—An elegant climbing plant totally distinct from the ordinary form of Hare's-foot Ferns; indeed it has nothing in common with them, and is by some authors called *Odontosoria aculeata*. The stems extend to an indefinite length; they are slender, somewhat zig-zag, and clothed with small sharp recurved spines, whilst the pinnules resemble those of some elegant member of the Maidenhair family (*Adiantum*). The fronds are much branched, the pinnules being tripartite, cuneate, and bright green. It should be potted in rough fibrous sandy peat, with which may be mixed a little light loam. It enjoys copious supplies of water if well-drained, and requires the temperature of the stove Fernery. Although not common in our Ferneries, it would seem to be plentifully distributed throughout the various West Indian Islands.

*Gymnogramma flexuosa*.—This is a member of the famed genus of Gold and Silver Ferns, but I suppose is considered one of the poor relations, for it is not ornamented

with a particle of the rich farina which renders the majority of the species so attractive; nevertheless, we have here a most elegant plant of scandent habit. The rachis is somewhat zig-zag, and the fronds are very much divided, the segments being linear and deep green. Although it does not attain any great height, it may, with justice, be classed with the best of the scandent kinds. It is of robust habit, and does not require any great heat, being found in small woods at 7,000, 8000, and even 10,000 feet altitude in the Sierra Nevada. The soil should be peat, loam, and sand, two parts of the former to one each of the latter; drain well, and supply liberally with water.

*Platyloma flexuosa*.—A remarkably handsome and very distinct cool house Fern. It requires good open soil, and must be well drained. This species is somewhat liable to attacks of thrip, and care must be bestowed upon it in order to prevent them establishing themselves; for when this occurs, they disfigure the pinnules to such an extent, that no other remedy exists but cutting the fronds quite away; therefore, watch it well, and fumigate it occasionally but lightly. Prevention, depend upon it, will be found far better than cure. The fronds attain a height of 6 feet or more, with a zig-zag stem; they are tripinnate, the pinnules numerous, ovate, and light green on both sides, the band of marginal sori being very conspicuous and effective. It will not thrive in a warm house. Native of considerable elevations in Peru.

#### GLEICHENIA.

There is one section of this genus designated *Eugleichenia*, by Sir William Hooker, which may be regarded as climbers, and used in the manner indicated here; although, I am aware, their rarity and aristocratic appearance, combined with their great beauty, has hitherto induced amateurs to keep them in pots and grow them as bushy specimens. The kinds here enumerated must be grown in a cool house; they do and will grow in the temperature of the stove, but it is not



necessary to their well-being ; indeed, when so grown, they are far more liable to attacks of thrip and scale ; therefore, I recommend a cool (not cold) Fernery for them. If planted out, and treated as climbers, the soil should be thoroughly drained ; indeed, it may have lumps of rock and charcoal mixed through it, for a shallow soil suits them far better than a greater depth. Plant them in good rough fibrous peat, which has had a quantity of silver sand mixed with it. During the growing season, they enjoy liberal supplies of water to their roots, but do not syringe them, and upon no account allow them to feel the want of water at any season. The majority of this section are somewhat similar in general outline, and therefore it will be quite unnecessary for me to dwell at great length upon their details. Suffice it to say all are beautiful ; and those of my readers who are not the possessors of any member of this genus, should at once set about repairing the loss, and any of the kinds here enumerated cannot fail to render them great pleasure.

*G. circinata*, also known in gardens by the name of *G. microphylla*.—It produces scandent fronds, some 6 feet high, and dichotomously branched ; the segments are long and orbicular, and plain on the under side ; colour bright green ; stems and branches clothed with short, reddish-brown hairs. Native of Tasmania and New South Wales.

*G. circinata glauca*.—In addition to the above description, this variety has a more robust growth, with rather broader and more coriaceous segments, which are dark green on the upper side, like the species, but below they are beautifully glaucous. Native of New Zealand.

*G. dicarpa*.—Fronds from 3 to 6 feet high ; scandent, dichotomously divided with pinnate branches ; segments small, orbicular, the margins recurved, thus forming a pouch on the under side ; dark green above, but pale below ; the stems are clothed with hairs,

but the branches are glabrous. Native of Tasmania.

*G. hecistophylla*.—This plant resembles the preceding somewhat, but is more robust ; stems and branches densely clothed with short reddish brown hairs, the fronds are some 6 feet long or even more, segments pouched, dark green, and glabrous. Native of New Zealand.

*G. rupestris*.—A very robust species, with thick leathery pinnules ; the fronds are from 2 to 6 feet in height, dichotomously branched, with pinnate branches, the pinnules broad and plain, dark green on the upper side but beautifully glaucous beneath. Native of New South Wales.

*G. semivestita*.—This kind I have found enjoys more warmth than most of its associates. It resembles *G. circinata* in general appearance, but still is sufficiently distinct to warrant its cultivation with that species ; fronds scandent, much branched ; segments orbicular and not saccate ; colour deep green. The branches are densely clothed with short reddish brown hairs, but the main stems more sparingly so. Native of New Caledonia.

*G. Speluncæ*.—Of this plant there are several distinct forms in cultivation, some being rather lax in habit and with somewhat distinct pinnæ, whilst others appear more robust in habit, denser in their growth and have the fronds much branched ; all however, have somewhat ovate segments, which are plain and not saccate on the under side ; the colour is light green above, but very glaucous below. Native of Tasmania and New South Wales.

In a genus like the present it is a very difficult task to recommend one species in preference to another, for all are alike beautiful ; and I find myself utterly at a loss to say which one or two any one should select, so my readers must either draw lots to decide the question, or what is better, grow them all.—*Vive Vale*.



## THE VIOLET.

THE very mention of the name of this hardy little floral treasure brings to the mind a memory of sweet odours, associated with shady lanes and grassy knolls, or sheltered hedgebanks. Like many more of our native flowers it belongs to the "modest Daisy" type, of which it is not the least charming example, and, though in its fragrance lies its chief attraction, its very unobtrusiveness is one, and not the least winning, of its qualities. Another source of its popularity lies in the fact of its flowering so early, and in the annual awakening of the vegetable kingdom from the slumber of winter, when

"Nature hastes her earliest wreaths to bring,  
With all the incense of the breathing spring,"

one of the sweetest gems with which she weaves her chaplet is the blushing purple Violet. This, indeed, can hardly hold good in all seasons, for if the season be at all open and mild it frequently has the effect of transforming the Violet from a spring flowering plant to a winter or even an autumn bloomer. We often have them long before the dark months have given place to the light and cheerful though cold and sharp days of early spring. This constitutional hardihood added to its other charms serves to render its attractions still more attractive, and is sufficient to account for the high place it holds in popular favour. It has long maintained a first place and is likely still to do so against all new competitors, however substantial their merits, or however loudly their praises may be heralded on the occasion of their *début*.

Among cultivated varieties the old Neapolitan is perhaps the most desirable, taking it all in all. The Czar and other Russian varieties produce much larger flowers with long footstalks, which render them peculiarly adaptable for bouquet flowers. The Neapolitan, however, produces its flowers in greatest

profusion, and besides being the hardiest is decidedly the most fragrant.

The routine of their cultivation, like the character of the plant, is of the simplest description. The season's treatment begins by dividing the old plants about the middle of April or as soon after as possible. In doing this the small runners must all be cleared away and nothing but the strongest runners and vigorous crowns retained. Those should then be planted out in well prepared and moderately rich ground, planting them either singly, about 9 inches apart, or in small clumps a little wider. The situation most suitable for their development is that where they can have the benefit of the full light without being directly subject to the scorching influence of bright sun. The shade of trees, if not too dense, suits them admirably, and not only conduces to their healthy growth, but is an excellent deterrent from the attacks of red spider, which is the one great pest of the plant, and which is not likely to multiply so readily in cool and shady places as it would do under the bright rays of the sun. Wherever it makes its appearance war must be immediately proclaimed, and applications of sulphur and copious waterings with strong soap-suds resorted to and persevered with till the foe be utterly exterminated. This watch and warfare, together with the usual attentions in the way of keeping the ground clear of weeds and removing useless runners, contains the sum of the summer work, so that the demands of the Violet are by no means of an extravagant character.

But although the plant shews itself willing to bloom freely, even in midwinter, it can only do so when the weather is propitious, and hence the necessity, where a constant and regular supply is desired, of making due provision for its assistance and protection. To effect this in a satisfactory manner it is



necessary to make a beginning in good time, so as to enable the plants to become thoroughly settled in their winter quarters before the severity of winter begins to assert itself. An ordinary garden frame or pit is the most suitable contrivance that can be employed, and if it be standing or can be placed in an old hot-bed so much the better, as a gentle heat that can be maintained for some time will be of the greatest assistance in giving the plants a start.

About the middle of September let such a bed be prepared by filling in with rich open soil to within 8 inches of the glass, so as to bring the foliage as near the light as possible. The plants may then be lifted from the open borders with as good a ball of soil as possible, and be planted firmly in the bed just sufficiently far apart to be well clear of each other, and after being planted should receive a good soaking of water. They will in due time take

hold of the soil and after being sufficiently established must receive plenty of fresh air to keep the foliage healthy. Water must be sparingly applied and the foliage dried as speedily as possible after the applications. Every ray of sunlight must be economized, as it is the most potent agent for producing winter flowers, and no covering need be applied till severe frost sets in, when a covering of mats at night to protect them will be advisable.

These are but simple directions, but they are sufficient if duly carried out to ensure a successful result. Any one following them out will be richly rewarded with abundance of those little blooms which are so pleasing to all. Moreover their grateful odour sometimes secured a welcome which might be grudgingly bestowed in many of the less sweet though more brilliant of our cultivated flowers.—*J. L.*

### *EPACRIS.*

THE majority of these plants are now past their flowering time, and therefore a few words respecting their spring and summer treatment may not be out of place in the pages of this Magazine. These plants are invaluable for winter blooming, and their long spikes of lovely bell-shaped and sweet-scented flowers may be used with advantage, and without injury to the plants; for placing in vases for the decoration of the drawing-room, for bouquet-making, or for the embellishment of the hair of a ball-room belle.

In addition to the species, which are all natives of New Holland, there are numbers of exquisite varieties which have been obtained by cross breeding in our gardens. They make long slender erect shoots, which in winter are covered with their tubular pendulous flowers, which render them very effective. The flowers are axillary, mostly

drooping, and lean to one side, forming long leafy racemes of bloom, which continue a very long time in full perfection. About this time the blooming season will be over, and it is at this particular stage of their existence that amateurs usually ruin their plants, and that simply through not cutting them back hard enough. Some of my readers may hesitate to follow my advice, and think me too severe on their *Epacris*; for this I am quite prepared, and I have seen my young men frequently laugh amongst themselves to think how I had ruined them, but a month afterwards the greatest unbeliever had to acknowledge the correctness of my practice.

*Epacris*, after the blooms are all past and before they make any fresh growth, should be cut down to within a few eyes of the old wood, after which place them in a somewhat close place, and occasionally sprinkle them



with water from a fine-rosed watering can. Under these conditions the eyes will soon burst and start into growth, but as soon as the young shoots get to be about 1 inch long they must be repotted; the soil should be good fibrous sandy peat, and the plants should be very firmly potted; they should be protected from sun and wind until the roots take hold of the new soil, when they will enjoy full exposure to sun and air, but should be carefully protected from an over shower of rain.

This treatment will be found suitable for the majority of species and varieties of *Eupacris*; but yet—there is a but even in this case—some kinds must be exempt from such severe pruning, and these are what I term the pendulous growing kinds, of which *E. miniata* may be cited as an example. In most instances, the young growths of these kinds should be shortened about a third of their length; and as they are of such a lax habit of growth, they are best supported upon some kinds of trellis. The system here mentioned

is too often the manner in which the whole family are treated; and thus, instead of their growing into nice compact bushes, producing erect graceful racemes of bloom, they become bare and naked stemmed plants, which require a quantity of stakes to support them, or must be put upon a trellis, in which state they become excessively ugly, and when in flower half their beauty is hidden.

The following names of varieties are arranged in their colours, as near as may be, for the convenience of amateurs selecting, and all are good kinds.

*Red*.—*Campanulata*, Fireball, *Impressa*, *Ingramii*, *Vesuvius*, *Viscountess Hill*.

*White*.—*Campanulata alba*, *Hyacinthiflora alba*, *Hyacinthiflora candadissima*, *Mont Blanc*, *odorata alba*, *Vesta*.

*Red-tipped White*.—*Eclipse*, *Hyacinthiflora carminata*, *miniata*, *miniata splendens*, *multiflora*, *Sunset*.

*Pink*.—*Hyacinthiflora*, *Hyacinthiflora fulgens*, *Lady Alice Peel*, *picturata*, *splendens*, *variabilis*.

*White and Rose*.—*Butterfly*, *elegans*, *exquisita*, *Lady Panmure*, *Lowii*, *Princess Royal*.

—*Vive Vale*.

## HAVE PLANTS INSTINCT?

IF vegetables have not instinct, they have something so nearly akin to it that it is hard to tell the difference.

Let any watch the growth of a Common Scarlet Runner Bean, it cannot live—at least it cannot thrive—without a support stronger than its own stem. And how does it obtain it? It lifts its slender stalk as high as its strength will permit, and there keeps it supported, obliquely or horizontally, until it has attained a yard or more in length. Then, like the streamer from a mast-head, it veers about with every breeze, throwing its curved head gently this way and that way, until finally it touches some supporting object. Its curved end then grasps the pole, or whatever the support may be, and soon holds it fast.

The climbing, however, is not attempted perpendicularly, as is done by the Bignonias and common Ivies, which strike their “climbing roots” into the supporting body, and ascend, if necessary, a bare flat wall. The Bean has no provision of that sort, its only available mode is by clasping; but this it does most effectually, twining round the pole invariably in the same direction, and usually at the same angle of ascent.

Plant that Bean (or, what is better, a Potato) in a dark room, with only one opening left for the light—a cellar, for instance, with its door open. If the Bean grow at all, its growth will be directed straight towards that opening without attempting to clasp anything on its way. It seems to know that the cellar is no



place for it to stay long enough to need support. Not only will it seek the door, but it will strain all its powers to reach it. Few leaves are put forth, and these few are small and far between. All its energies are devoted to acquiring length. It is engaged in a struggle for life; it must gain the open air or die.

The same struggle is to be seen wherever vegetation is rank and dense, as among the forest trees of a river bottom. The effort of each is to overtop its neighbours, and thus to obtain the needful light and air a necessity similar to that which caused the struggle in the "Dark Hole of Calcutta," where so many soldiers perished for want of air.

Most plants seem to enjoy a kind of sleep at night, and some of them even make visible preparations for it—the Mimosas, for instance. How gracefully they fold their tiny leaflets on the approach of night, like the hands of a little child put together as it reverently says its "Now I lay me"! And the Sensitive Plant, a well-known species of the same family, how keenly alive to disturbance it seems to be! All persons have watched its beautiful motions, and all can testify that no blushing girl more quickly averts her face or drops her head to avoid a too eager gaze than these modest little things fold their leaves and drop them against the stem when touched by an admiring observer. Some plants and trees are as eager as Shylocks after the coveted treasures of the earth, and manifest remarkable skill as well as enterprise in search of them. The Paper Mulberry (*Broussonetia*), for instance, will send its roots all over a good-sized garden in search of food, robbing and reducing to starvation all delicate plants occupying the ground; and if there should happen to be a well within reach, it will discover the fact, send down its roots twenty or, if need be, thirty feet, and drink what water it needs.

A fact illustrating this occurred in the case of a Honeysuckle. A friend of the writer, on leaving home for the summer, had set his choice pot-plants, without their saucers, in a row on

the bare ground, about 10 or 12 feet from an Oak, around which twined a vigorous Honeysuckle, saying to his servant, "Have nothing to do with these plants except to give them water." On his return home in autumn, he was grieved to see how sickly and starved most of his plants appeared, especially three choice Azaleas, occupying pots about a foot apart; and he set himself the very next day to investigate the case. On taking hold of the palest and most sickly of the Azaleas, he was surprised to find its pot anchored fast to the ground. He thought at first that the roots in their desperation had gone through the hole at the bottom, and had searched around for the means of livelihood. What surprised him again, however, was to discover that the roots increased in size as they receded from the pots, and that they all converged towards the Oak with the Honeysuckle. Examining still further, he soon discovered that the roots did not go from the pots to the tree, but came from the tree to the pots, and that they were not roots of the Oak, but of the Honeysuckle. That hungry plant had scented afar off the moisture and manure appropriated to its favoured neighbours, and had sent out its roots on a foraging expedition among them. Why it should have selected the pots containing the Azaleas rather than the others, we must leave to the reader's own judgment, but the simple fact is that its attack was directed almost exclusively against them, possibly because they were nearest. On being more critically traced, one root was discovered to have been shot out from the Honeysuckle, straight as an arrow, to one of the pots; and a second root at midway to have divided into two branches, each of which went to a separate pot directly to the hole below. There they entered and revelled, ramifying in every direction among the more delicate roots of the Azaleas, and robbing them so ruthlessly of their food and drink as to reduce them almost to starvation. Were these acts of the several plants the results of accident or of instinct?—G.



## NEW AND RARE PLANTS.

## CEPHALOTUS FOLLICULARIS.

THE New Holland Pitcher plant, *Cephalotus follicularis* (fig. 1), has been introduced for some years into our conservatories. Our growers of plants have found it to be a ticklish subject, now growing into a nice tuft and again giving way. The principal cause of non-success lies in keeping the plant too warm and too dry. When this happens, the pitchers get infested with thrip, which so impoverishes them as to cause a general de-

plant, and how it ought to be treated to grow well:—

“This remarkably novel and interesting object forms a neat dwarf greenhouse plant, from 2 to 3 inches in height, with short spatulate leaves rising from the centre, and comparatively large, oblong, pitcher-shaped organs, laying on the soil in a somewhat circular outline around the leaves. The pitchers are green, tinged with purple or brown, with several fringed linear plates, extending



Fig. 1.—The New Holland Pitcher Plant (*Cephalotus follicularis*).

crepitude. The plant becomes sickly and ultimately dies. A cool moist climate is the sort of thing that should be aimed at. Although these tufty plants shew some partiality for light, they do not get along well under sun light. Kept near the glass and screened from the sun's range, they are in position to grow and thrive. The Messrs Henderson who have furnished us with the illustration, give the following interesting particulars on the structural formation of the

lengthway on the outward surface of each, whilst the lower lip or mouth is formed with a regularly corrugated or rigid margin. In some varieties, the lid, projecting from the upper or back part, is prettily marked with reddish-crimson bars. It forms one of the most wonderful illustrations of vegetable structure and economy yet seen in gardens. It thrives well with a warm greenhouse temperature, planted in a mixture of chopped sphagnum and sandy rough peat, well-drained;



the principal precautions are to maintain a air, or water, upon the leafy organs. The porous texture of material for its growth, admitting a free circulation of water, with a lower the temperature, the more requisite are the latter precautions, and vice versa."

ADIANTUM PERUVIANUM.

The Peruvian Maidenhair is growing in importance as it grows in years and in size in

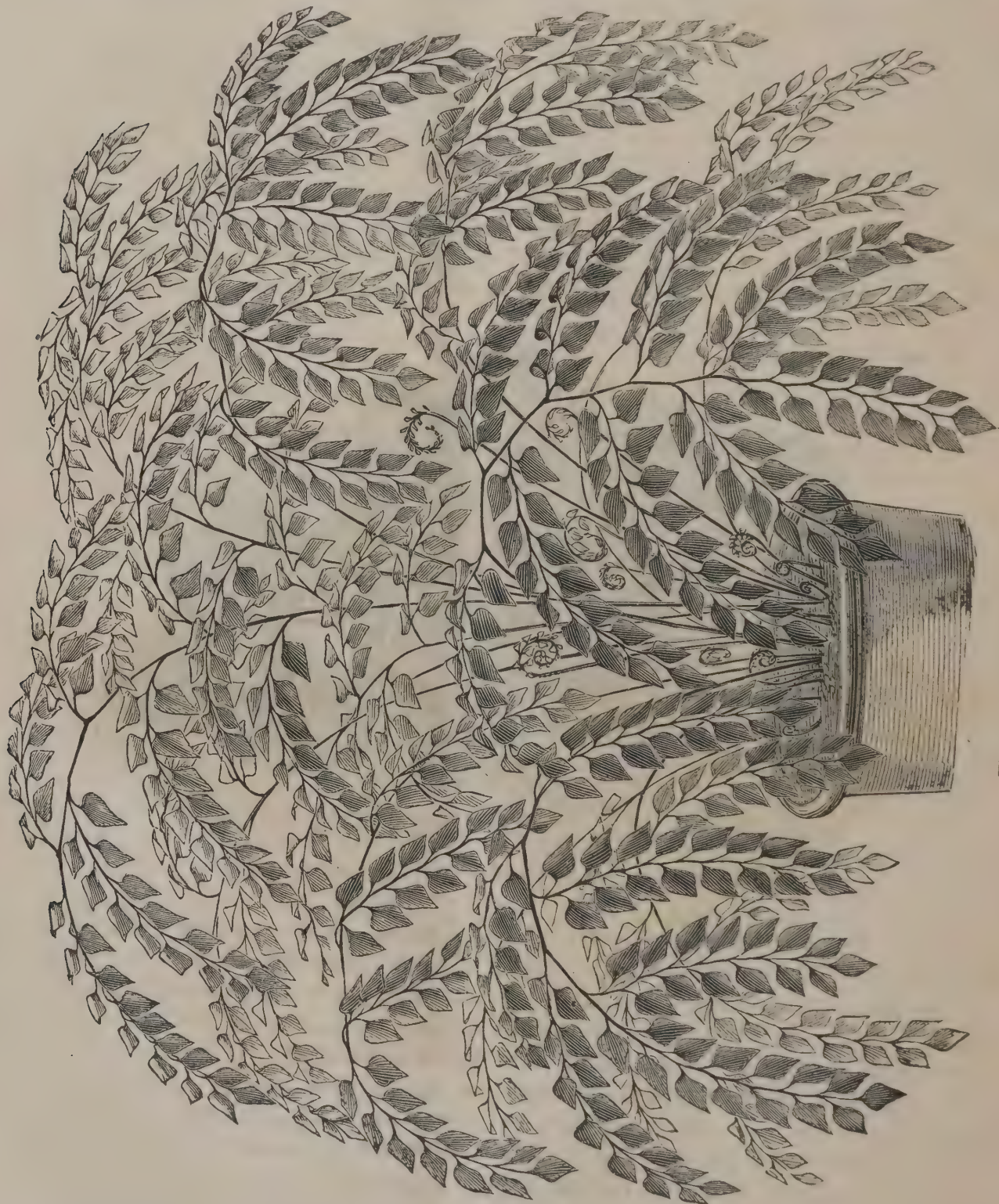


Fig. 2. — *Adiantum peruvianum*.

found conducive to its vigour, by maintaining a more uniform temperature around it, and as a screen from the chilling effects of cold the Fernery. As we have seen it in the Veitchian stoves, nothing possibly could surpass it. Its great decomposed fronds,



with the pinnae of good size, and glistening in the light, make it a most attractive plant. It requires little encomium from us after the exhaustive diagnosis from the pen of Mr

Maidenhair Fern, which rivals, if it does not excel, the well-known *Adiantum trapeziforme* in the size of its pinnules, and far surpasses that grand old Fern in the elegance of its



Fig. 3.—*Aphelandra nitens*.

Mosses, when figured in the *Garteners Chronik*, which we subjoin:—

—This noblest of all known species of large, compound, drooping fronds, was first made known from Peruvian specimens in the herbarium of King and Pavon, and was

afterwards gathered by the collector Mathews. It is a plant which at once rivets attention and commands admiration, not alone on account of its unusual pendant habit, but also by reason of its bold and strongly marked character. From a stoutish, decumbent,

as the apical portion of the frond, spreading out and hanging as gracefully dependent as the boughs of a Weeping Willow. Four or five of these pinnae or branches are produced, the lower ones being fully a foot in length, and again branched near the base. The pin-

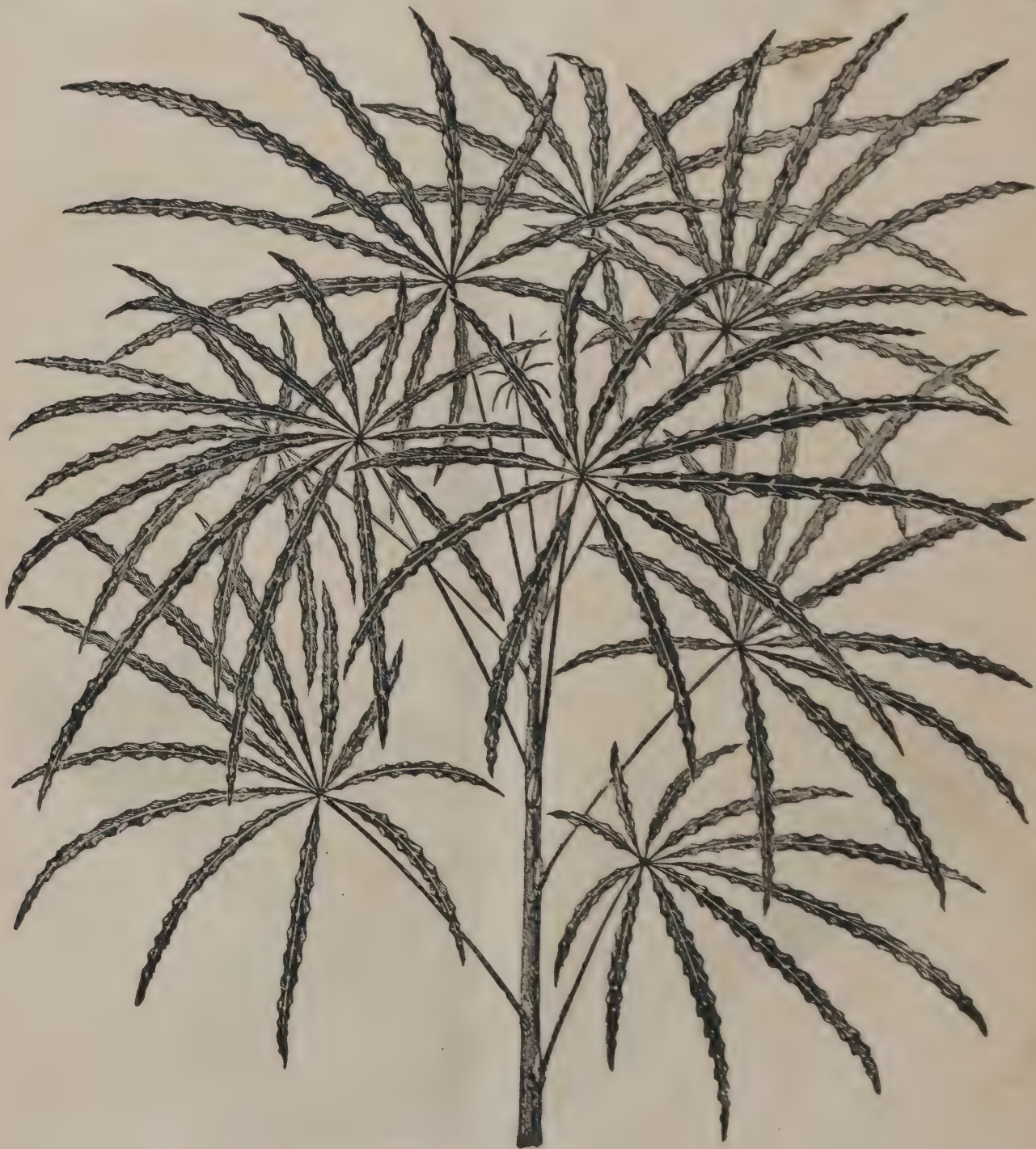


Fig. 4.—*Aralia Veitchii*.

slowly extending caudex it throws up to a height of 12 or 15 inches, the stout, black, erect, polished stipites supporting the ample fronds, which are between 2 and 3 feet long, the nearly simple, elongated branches, as well

nules are numerous, of a stoutish, papery texture, and of large size, opaque green, quite smooth, and attached by slender petioles, ranging from  $\frac{3}{4}$  of an inch to 1 inch in length, they have the base more or



less wedge-shaped, the apex generally being acute or nearly acuminate, and the side angles rounded, so that the pinnules be-  
 measure, in ordinary well-grown mature fronds, fully 3 inches long and 2 inches broad. The sori are large, produced along the whole of

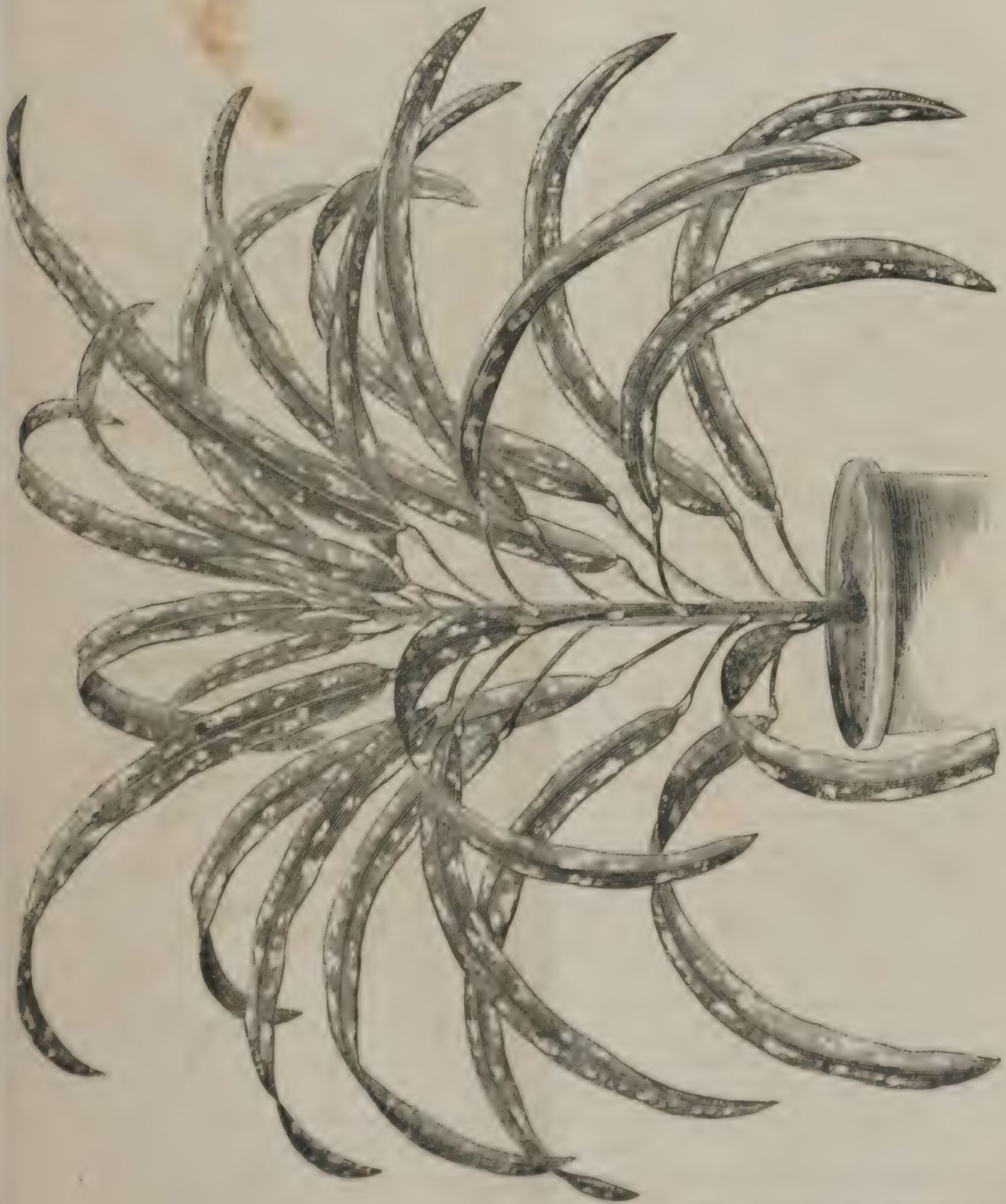


Fig. 3.—*Croton Youngii*.

some unequally ovate, or somewhat the two anterior margins of the pinnules, trapeziform, according to the degree of oblong, varying in length, but generally obliquity in the two sides. The pinnules shortish and somewhat rounded. The veins



are flabellately-forked, without trace of midrib."

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APHELANDRA NITENS.

"A near ally of the *A. aurantiaca* (Lindl.), but a much more beautiful plant, and indeed one of the handsomest of the splendid order to which it belongs. Nothing can exceed the brilliant glossy polish of the upper surface of the leaves, the dark vinous purple of their under surface, and the brightness of the vermilion scarlet of the corolla. It is a native of Guayaquil, in New Granada, from whence it was sent to England by the late Mr Pearce, when collecting for Messrs Veitch." Such is Dr Hooker's description. To that we may add that it is of easy culture, growing freely under the influence of a little mild bottom heat. The flowers, although showy, are by no means so characteristic of distinctness as the leaves. It looks rich among a group when in good health, and all those who have stoves should grow it.

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ARALIA VEITCHII.

We have long admired this plant from its elegant habit, being quite tree-like in miniature. The straight stem carries the attenuated digitate leaves very much to one's liking, and the discoloured foliage green above and reddish beneath renders it a marked object. We have only seen it in the Veitchian stoves and at the several exhibitions where that firm exhibited, but in all cases it singled itself out as one of the novelties that would have a history at future exhibitions, and rank high for general decorative purposes. It is from New Caledonia, and being a slow grower has been exceedingly difficult to propagate in anything like numbers. As the Messrs Veitch say, "As an exhibition foliage plant, there is no doubt it will always stand in the first rank, and as a dinner-table decorative plant it is probably without a rival." It has received no end of honours, and we can consequently give it the highest recommendation.

CROTON YOUNGII.

The Crotons are a marked race, and this one, although it swells the numbers of new varieties, does not take place merely as a nominal novelty, but ranks among the first for distinction. It was received by the Messrs Veitch from Mr Young, of Sydney, and dedicated to him. As the senders observe—remark—and we cordially endorse their certificate from personal observation—"This is a magnificent Croton, perfectly distinct in every way from every other variety yet known. It is of noble and graceful habit. The leaves are of great substance, from 6 inches to 2 feet in length by  $\frac{3}{4}$  of an inch in width, deep red underneath, while the upper surface is dark green, densely blotched and suffused with creamy yellow and bright rosy red."

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PSOPHOCARPUS TETRAGONOLOBUS.

Among novelties in plants remarkable for the singular formation of their seed vessels there is nothing in modern times more worthy of attention than a plant out of cultivation, now re-introduced by Messrs Henderson—*Psophocarpus tetragonolobus*. As will be seen from the engraving on the opposite page, it is one of the Leguminous order, and is as free as a Cucurbit in sending down its bristly-looking pods. The introducers thus speak of it:—

"This is one of the most rare and remarkable species in the extensive group of Pea-like flowering plants. It appears to have been introduced to this country half a century ago, but lost to our gardens until recently introduced to a private garden, and eventually passed into our hands.

"It forms a tuberous-rooted perennial twining herbaceous plant, of a very neat vigorous growth, from 5 to 10 feet in extent, with trifoliate or three-lobed leaves, each leaflet of a heart-shaped outline.

"In habit the plant much resembles the elegant *Clitoria ternata*, but is more robust, and much more free in growth. Its flowers are comparatively large as in that plant, of a

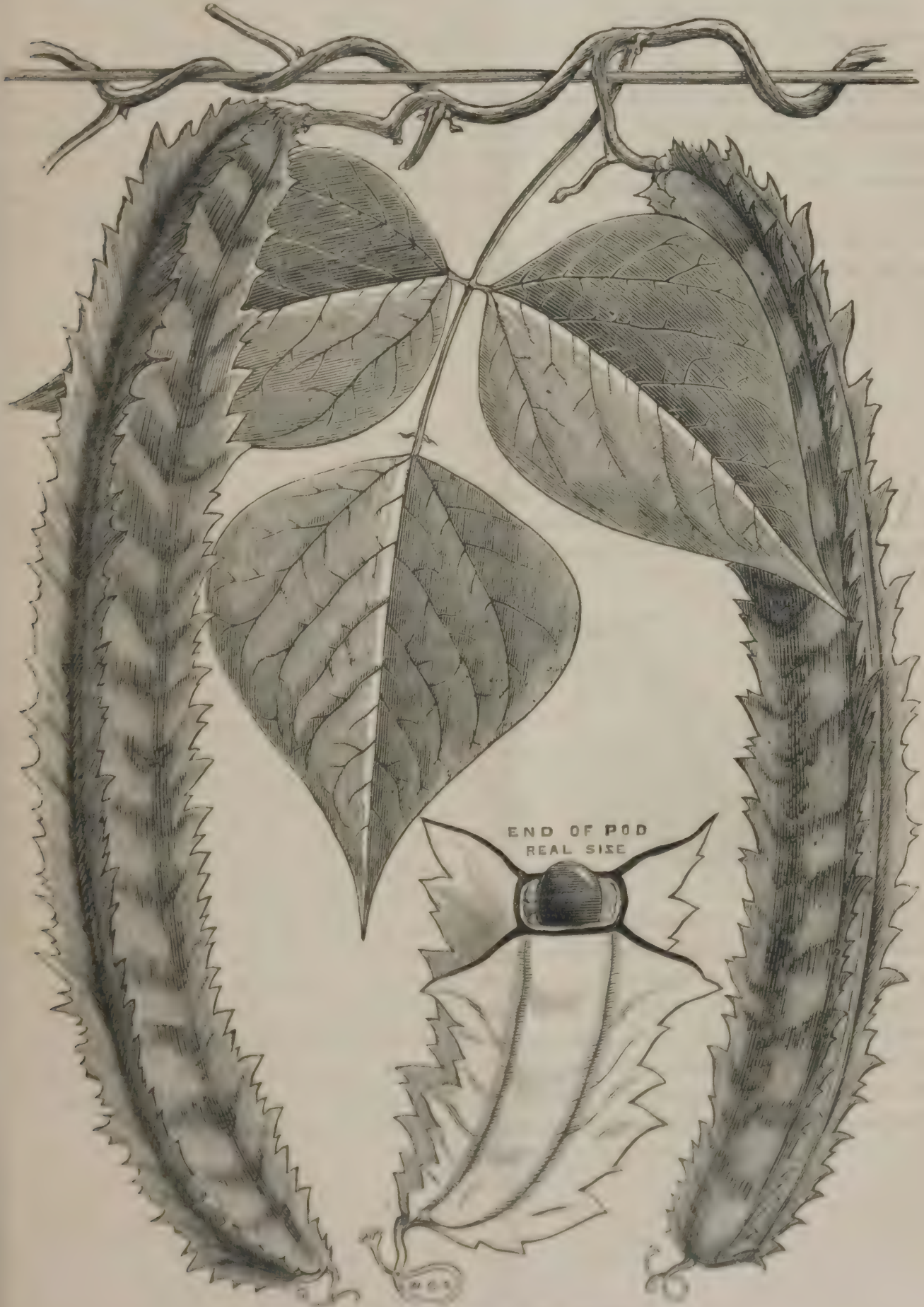




SKETCH SHOWING HABIT



21 FEET



END OF POD  
REAL SIZE

Fig. 6 *Psophocarpus tetragonolobus*



light azure-blue colour, and each blossom is succeeded by a most remarkably large square pod or seed vessel of a bright emerald-green tint, and from 10 to 12 inches in length; in form and outline as illustrated in the accompanying plate, which shews but one-half the natural size and length. Each pod or seed vessel is furnished with four prominent longitudinal doubly-toothed membranous wings at the angles, thus imparting a very unique and interesting feature to the plant.

"These blossoms and fruits are freely produced in succession throughout the summer

months. The plant is readily reared with the same treatment given to Balsams and other similar plants, requiring the aid of a genially warm and moist atmosphere during the first stage of their growth, and afterwards encouraged to mature growth in a close warm greenhouse. It should have liberal root room after the young plants attain an established vigour, by being transferred to good-sized pots, or a single specimen might be planted in the border of a warmhouse, where it can display its novel and interesting fruits from the rafter, or otherwise trained on a trellis towards the light."

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### *THE NEW DOUBLE-CYLINDER GARDEN ROLLER.*

AS the time has again come upon us when rolling of lawns and of walks is absolutely necessary for the maintenance of a high state of order, we present an illustration of an im-



The New Double-Cylinder Garden Roller.

plement called the "New Double-Cylinder Garden Roller," which may be bought by those who stand in need of buying such a thing. Rollers of any kind are good and useful, and no one cares to discard the old if it will do its work, even for the better new, but where a new is needed, it is well at all times to get the best. If this roller engraved

is not the very best, it is one of the best for general usefulness. Some may not be inclined to think it heavy enough for keeping down lawns, but for general use it is quite powerful enough, and then it can be had in such a variety of sizes, to suit the wants of almost any one. We admire the principle of the double roller, which is not new certainly, as any one acquainted with farm implements well knows, but it is none the worse for that. It goes over the ground quicker than the smaller single rollers, and does not leave so many marks. It is particularly useful for drawing round intricately formed beds, either laid down on a lawn or on a piece of gravel. It has another advantage, the axles do not project beyond the rim, as all single-barrelled rollers do, and when one is rolling about fine shrubs, or specimen Conifers, they can do so without injuring the branches. That, of itself, is no small matter. For that, therefore, and for other things noted above, we commend this roller to buyers.



## Arboriculture.

### GRAFTING AND BUDDING.

THE "Art of Grafting and Budding"\* is the most complete handbook of its kind published. It sets forth both the theory and practice of grafting in so graphic a way that the veriest tyro has only to use his eyes and his powers of imitation to be a successful grafter or budder, as the case may be. There is not a single plant in cultivation—let it be a fruit tree, a favourite

an excellent companion, and to the villa gardener who delights in experimenting with his or her own hands it will be greatly prized. Such a work profusely illustrated has long been a desideratum, and we are glad that it is now published in a cheap form. We take the liberty of cutting at random from its well-filled pages, and we have to thank Mr Robinson, the publisher, for handing us the subjoined illustrations.

#### ORDINARY SHIELD-BUDDING.

Of all the methods this is the most extensively used in nurseries and gardens.

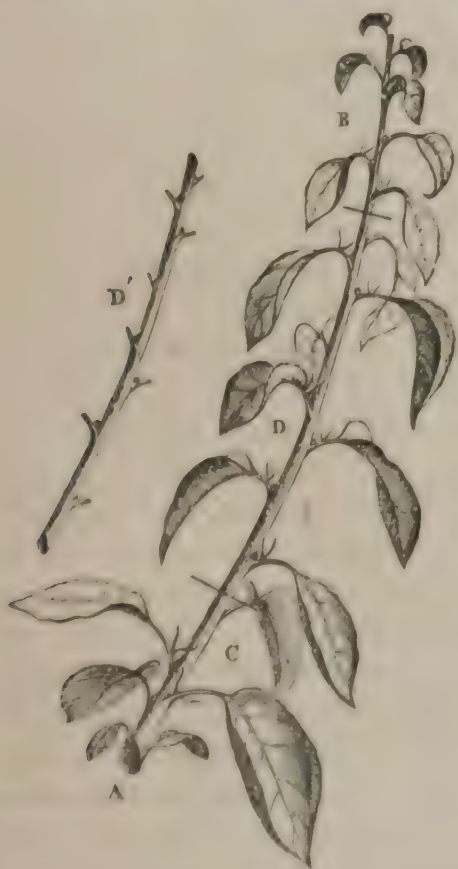


Fig. 1.—Preparation of the Scion for Shield-budding.

greenhouse or a border herbaceous plant—but you will find an excellent representation of how to deal with it either by grafting or budding. To the gardener it will be found

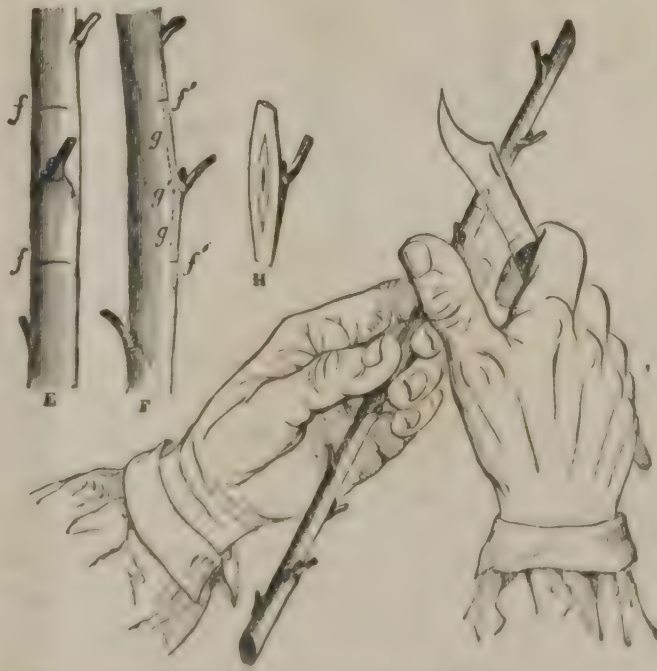


Fig. 2.—Removing the Bud.

#### PREPARATION OF THE SCIONS.

The shoots, having been selected according to the foregoing directions, are prepared by rejecting whatever is useless for budding. In the first place, we may observe that the eyes in the middle of the shoot are most suitable

\* "The Art of Grafting and Budding." By Charles Baltet. London: W. Robinson, 37 Southampton St.

for use in shield-budding; those at the base and top have often the defect of being imperfect, herbaceous, blind, or too much disposed to fruit. The bud to be selected should be well formed, neither latent nor a fruit bud, nor damaged in any way. Shoots of forced growth, and those which have too great a tendency to produce flowers, do not afford suitable eyes for budding purposes. If, however, there is a deficiency of good buds one may employ doubtful ones, using two instead of one, or one good bud and one doubtful one on the same stock. There are some shoots which appear uncertain, but which turn out well with the help of pinching. Overgrown spurred shoots are not to be despised, nor are those which are covered with an abundance of leaves. The Pear branch (fig. 1)

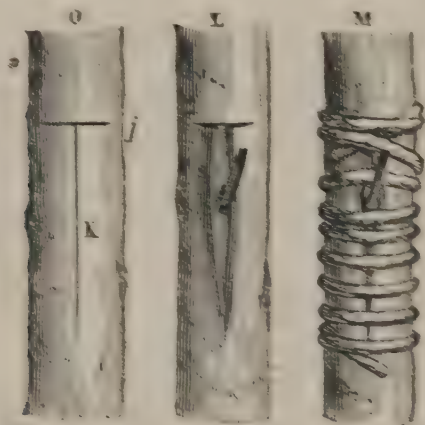


Fig. 3.—Inserting and Tying the Bud.

having been selected, the extremities (B and C), which are useless, are cut off, and the leaves cut down on their stalks to within about  $\frac{1}{2}$  inch from the axillary eye of each (as shewn at D'). The stipules are also pinched off. The scions thus prepared are to be immediately placed in the shade in a cool place, with their lower extremities plunged in a vessel containing water or damp moss. They should not be left in the water more than five or six hours, unless they are in a very dry condition, when they may be left in it for a day, with the ends only in the water in a shady place, and then for a night placed in the grass or moss, in order to restore the natural moisture which they may have lost.

The nurseryman who prepares in the evening scions to be used next day leaves them all night in cool grass or in a damp cloth. Should water not be at hand, the scion should be buried entirely in soil until they are required for use. They should not, however, be left unused for more than twenty-four hours. Scions of evergreens should not be stripped of their leaves; these should merely be cut off through the middle of the blade, although even this is not absolutely necessary.

#### REMOVING THE BUD.

The shoot is held in one hand and the grafting-knife in the other. The bark is then cut through about half-an-inch or so above and below the bud (fig. 54 f, f, E.) Then holding the shoot, as shewn in the illustration the blade of the knife is inserted just above the upper incision, and driven in a slanting direction as far as the alburnum; then carried along towards the lower incision, following the course of the dotted line (g, g, F), and observing the bending at g' just under the bud. In consequence of the two first incisions (f, f) the bud comes out, as shewn at H, cut clear at both ends. At the back there is no wood except under the bud: this little woody tube is its *germ*, so to speak, and without it it would not grow. Should there be a splinter of alburnum attached above and below it, it should be seized by the upper end and pulled off smartly; if taken by the lower end there is danger of tearing off the germ along with it and the bud, if deprived of this, will not grow. Nevertheless if the sap of the stock is in full flow, there will be no harm in leaving a small particle of wood under the bark of the shield bud; it will help to render the union of the parts more intimate. A skilful operator seldom or never removes this little piece of alburnum as he knows that by doing so he would run the risk of injuring the bud or of exposing it too long to the air. When he has an abundant supply of scions, he does not hesitate to throw away any bud that happens to have been removed in a doubtful condition.



tion, and use another in its stead. Scarcely will he lose time in trimming squarely the ends that may have been cut irregularly. Some operators proceed in a different way, among whom M. Edouard André holds the scion-branch head downwards and removes the bud by passing the knife in a direction contrary to that which has been described.



Fig. 4.—Opening the Bark for insertion of the Bud.

The strip of bark having the form of an antique shield, square at the top and narrow at the base, is easily inserted into the stock.

#### INSERTION OF THE BUD.

The bud having been detached from the shoot, the bark of the stock is opened by making two incisions with the grafting-knife in the shape of a T, to the full depth of the bark; then with the ivory spatula of the implement, the edges of the longitudinal incision fig. 3 κ) are raised at its point of junction with (the incision (j)). At the same time, the other hand, holding the bud by the stalk slips it into the incision as quickly as possible, so that the parts underneath may not suffer from exposure to the air. Care should be taken not to remove the bud from its parent shoot until at the moment when it is to be inserted in

the stock, and also that no foreign body be allowed to introduce itself at the same time into the incision. The inserted bud is represented at L.

#### BANDAGING THE BUD.

The best bandages for shield-budding are wool, cotton, leaves of Typha or Sparganium. We have already mentioned, in the chapters on bandages (p. 120, vol. i.) how they are prepared, so as to be pliant when they are used. The bandage is wound in a spiral manner round the stock (as at M), commencing at the upper part, as by doing so we avoid the danger of raising the bud and displacing it from the incision, which is very likely to occur, especially when the buds are large and broad. One end of the bandage is placed on the horizontal incision of the T, round which two or three turns are made. It is then wound in close spiral turns about the graft as far as the bottom of the vertical incision. The end of the bandage is passed through the second last turn, and fastened securely. The parts to be most firmly tied are at the top and bottom of the incision, and just above and below the bud. The tightness of the bandage must, however, be within certain limits; it must not go so far as to bruise or fray the bark, and will be sufficiently attained if the bandage is not moved by passing the finger over it.

#### PRESERVATIVES AGAINST DRYNESS.

In addition to the bandage, a leaf of the tree is placed over the grafted part, when the stock is grown against a wall in the full sunshine. Mastic is never used in shield-bud grafting. The only case in which it might be used is when the bandage is likely to become loose, then the application of mastic would serve to keep it in position, and preserve the graft from the action of the atmosphere. When the Vine is shield-budded, soil should be heaped up about the stock. The operation should be performed about the end of July, and the soil kept about the graft for a fortnight. We have known M. J. Gagnerot, of Beaune, operate in this way with complete success since 1865.

*GROUPING EARLY FLOWERING FERNS AND SHRUBS.*

IT is not a little singular that the passion for grouping that has characterized late years has almost wholly expended itself on half hardy flowers. It is but seldom that one meets with a tastefully grouped bed, garden, or border of hardy flowering plants, while groups of flowering trees and shrubs are still more rare. Many of the latter, however, would obviously gain much by being massed. The faults of most of our ornamental plantations and shrubberies are meagreness and monotony. The dotting style is largely responsible for the first; perpetual mixtures for the second. Massing is the way to breadth, richness, and intensity. One tree or shrub may be beautiful; three, six, twelve multiply the beauty, probably far beyond the ratio of the mere increase of numbers, as compound interest in the purse. The masses bulk out, fill the eye, and satisfy the mind. Each tree helps and is helped by its neighbour, many times over. We rest and are satisfied by a certain type, colour, or form of beauty, and then pass on with new zest to others. The key to the secret that one garden refreshes and pleases, while another, of much smaller size, becomes tiresome before one gets half pound it, is, that the last is a featureless mixture, the other a changing panorama of beauty, unfolding new features at every step. There are several general methods of grouping trees and shrubs, such as the pure, all of one sort; the mixed, on either of the two opposite principles of congruity or contrast; the botanical, in families; geographical, in countries; statural, in equal or graduated heights and size, &c. But, perhaps, simultaneity of flowering would prove one of the most interesting and novel principles of grouping. Early in the season, however, we have, unfortunately, a very limited choice of showy subjects. In February, for instance, we can

hardly be said to have more than one tree, the Cornelian Cherry, and one or two shrubs, such as the Laurustinus, the Mezereon, and a few early plants of Berberis Bealii and Aquifolium, with possibly Rhododendron davuricum and a few Heaths; and the whole of these, with the exception of the Golden Cherry, depend so much upon the season that they may not be in flower till March. We may also have the small catkins of some of the Willows and Filberts. But this Cornelian Cherry is a grand thing, either singly or in groups, especially if backed up by dark Scotch Firs or other Pines, or set in front of sombre masses of Yew. How the dark foliage throws out the golden flowers! Then again, what an eye or centre we have in this Cherry for a group of early flowering trees, which may alike give and receive richness of colouring and effect from its fading glory. Supported with double-flowering scarlet, pink, and white Peaches and Almonds, Ribes sanguineum, Laurustinuses, Berberis, Daphne, Andromedas, and early flowering Heaths and Rhododendrons, a group may be formed a picture of the very spirit of the spring. What richness, purity, and variety of colour, what contrast of character and form, what variations of height we have in these few plants! The Heaths lighting up the turf with their glowing brightness, and the Peaches and Almonds rising to the height of or even surmounting the Golden Cherry, while Ribes, Berberries, &c., mingle their scarlet and gold with an easy grace that results in the perfection of art. True, among a redundancy of scarlet, white, pink, and gold, we lack blue to complete the colouring of the picture; but the missing link may be supplied in various ways. For instance, the base line may be filled in with the semi-glaucous variety of Juniperus Sabina prostrata, or the ground



about the scarlet Heaths be cushioned with *Myosotis dissitiflora*, and the if possible yet more beautiful blue-flowered *Omphalodes verna*.

Most of these trees and shrubs will flower in February or March, and even in

April the Cornelian Cherry is still arrayed in tarnished gold; while the *Ribes*, *Laurustinus*, and a few of the Berberries, *Daphnes*, Heaths, &c., are in full beauty. As the season advances we shall have more variety, though hardly more beauty.—*Garden*.

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### THE OAK AS A LAWN TREE.

THERE is no better or more certain method of obtaining a knowledge of things than by experience. Our opinions change in spite of all preconceived notions, and we are surprised at our own weakness in not being able to discern plants which experience has brought into view. The Oaks have long been celebrated for their beauty as well as usefulness, and they are worthy of all the praise bestowed; but their fitness for certain positions in ornamentation of suburban grounds, is a question that will bear discussion. In the present advanced state of Landscape Gardening, the lawn is really the foundation, while the trees, disposed in groups, belts or single specimens, fill up and give variety, expression, and tone to the picture. In grounds of considerable extent, a semi-wildness is not only admissible but desirable, and littering leaves and scattering clumps of wild grasses amid barren rocks or hillocks are not out of place, but in small grounds limited to a few city lots, or even an acre or two, the surface of which is smooth and without natural obstructions; cleanliness and neatness should be preserved, instead of making any attempt to produce an appearance of wild ruggedness. To have both combined, or contiguous, is certainly

desirable and usually attainable, if one seeks a wild, rugged spot, and then tames a portion artificially; but there are objections to this combination, as I have learned by experience in my own grounds, which are of a mixed nature, for the leaves, nuts, flowers and other cast-off garments of the trees become scattered over lawns and flower-beds to the disgust of the owner of a well-kept garden. Of course, it depends somewhat upon the kinds of trees adjacent to the garden, as some, like the Chestnut, which are constantly contributing something in the way of litter during the entire summer. First, the long catkins, like huge yellow worms, are scattered over walks, out-buildings, and lawns, followed by more or less early ripening leaves in July and August; then September brings down the prickly husks, which tumble about to the discomfort of feet incased in thin shoes, or the "sit-down" of the lounge in the shade.

A deciduous tree that will drop its leaves all at one time, is far preferable to one that keeps up a continual scattering through the season. There are several species of Oaks which belong to the latter class, and for this reason are well worthy the attention of all villa gardeners.—*T*.

## The Veterinarian.

### AILMENTS OF THE SEASON.

#### BRAXY.

IN our last we gave a brief account of one of the common affections of young stock, viz.—“black-quarter,” which belongs to the class of blood diseases, and we have now to notice another, in the same category, but confined entirely to the sheep.

In all classes of animals we find a prevailing tendency to succumb to one form of disease at one period of life, and at a later to one of a different kind altogether. Thus, young cattle are liable to black-quarter, but the conditions that produce that affection give rise to other blood diseases, as apoplexy of the spleen, and among pregnant animals, another form of apoplexy, which we must notice at a future time. Likewise, in young sheep, the acknowledged causes of black-quarter of cattle develop the affection known as black-spauld, but older animals contract what is known as braxy.

Among the various signs which characterize the malady, diarrhoea or obstinate constipation form prominent features, and the hill shepherd recognizes the first as dry braxy, the latter as dumb or water braxy. The animals are usually attacked suddenly by giddiness and staggering gait, the head is elevated and he falls forward, and, after convulsions more or less protracted, dies. Sometimes the course is slower, but rarely. The wool sticks or lies flat on the skin, and is harsh to the touch, obstinate costiveness of the bowels speedily gives way to excessive looseness, violent straining, and colic; and in certain instances the cases prove tedious and characterized by lingering fever. Putrefaction goes on rapidly in the body after death, and its evidences are even

present during the last few moments of life. Air is largely present in the first stomach or paunch, also beneath the skin and between the muscles and membranes of the body; and when liberated by the knife is frequently unbearable from the powerful odour of decomposition by which it is impregnated. In some cases even before death, air may be detected under the skin by passing the hand over it, when a perceptible crackling will be heard.

After death a bloody froth fills the nostrils and windpipe, and in the abdomen a reddish coloured thin fluid is found. All the organs and bloodvessels are charged with very black blood, and dark red or black spots and patches may be seen upon their outer side. The heart is full of blood, and all the muscles of the body are darker coloured than natural.

Braxy is an affection which, like black-quarter, will pay better in prevention than cure. The sudden nature of the attacks and rapid progress of disease admit of no proper course of medical treatment, therefore it is desirable to attempt a system by which the origin may be arrested. For this purpose in hilly districts more shelter is required, by which the effects of exposure will be considerably mitigated, and in autumn and winter, when natural food is scarce, dry or artificial kinds should be substituted so as to prevent the animals becoming low and weak. In spring and summer, when food is abundant, great caution is required in management, for those animals which are thriving rapidly, especially after being kept low during cold weather, are most likely to be the victims. Likewise, dur-



ing moonlight nights many are affected, as a result of over-repletion; and during sharp frosty mornings as an effect of exposure, when the blood is heavily charged with highly nutritious elements. If possible, more exercise should be given to the most vigorous animals, and a proper action of the bowels ensured by suitable food of a laxative nature, and occasional doses of saltpetre, which may be given among bran or linseed-oil cake, &c. Bleeding and purgation, in some instances, are quite called for, and sudden changes from poor to rich food should always be discountenanced. While a system of growth and development is to be promoted by suitable food, it should be induced regularly and gradually, which in the end will prove far more profitable than scarcity during autumn and winter, with a careless and sudden turning upon rich succulent food at a season when the system does not require so much and is least able to bear a direct overcharging by it.

#### PARING THE FROG AND THE SOLE.

Our American cousins, with the usual zeal and their peculiar animation, have been of late occupied in busily discussing the various methods of horse-shoeing; and as is always the case when his opinion is given upon any subject Jonathan bows and retires with the statement, nobody knows so much as he about it, and every one, most particularly those in this "bit of garden," have made a complete bungle of it.

Recently a small treatise on "Practical Horse-shoeing," which received the first prize offered by the Scottish Society for the Prevention of Cruelty to Animals, was published and widely circulated here and abroad. America as usual received a tolerably large consignment, but instead of accepting the addition of such a well-digested and powerfully written work with gladness, it has been disdained and criticized in such a low, vulgar way that we have felt constrained to admit that our cousins are a shade more brutish than we formerly believed them to be. The

whole matter lies in a nutshell. The author, Mr George Fleming, is a most talented writer and linguist, but he is not a Yankee; he has shewn that the principles claimed by the Goodenough Company—which *is* American—are not at all new, but that everything good in them are direct copies or slight modifications of those known and practised quite a century ago. Like other patents, it possesses some glaring evils; and while the system is pronounced as a panacea for *all* the diseases of the feet brought on by other plans of shoeing—which, by the way, are of course declared to be absurd, wrong and capable of great detriment—it is proved beyond dispute that the statement is at least an unwarrantable assertion and liable to mislead. While corns, sandcracks, &c., are said to be cured by Goodenough, it is now evident, as we have seen ourselves, that the system, and it only, as practised under their own supervision, has actually produced those very states in the horse.

Jonathan sees also that our Scottish, and no less the British (the Royal) Society for the Prevention of Cruelty to Animals, have taken a step in advance of that of the New Country, and another source of chagrin is the fact that no one from America gained the prizes offered. Under such circumstances we can understand that criticism will not be of an impartial nature, indeed, as we have said personal abuse has characterized the various effusions to the entire exclusion of fair discussion or enlightened judgment, and without any tendency to promote the ends of science, lessen the sufferings of a valuable animal, or improve the acquaintance of owners with a subject about which all should know more than they do.

Jonathan is particularly sensitive on one point, viz., "paring the frog and sole." All writers on that side of the ocean demand for their champion the honour of being the first to advocate the principle of non-interference with either, but do not go beyond mere dogmatism. The truth is the efficacy of the plan was known to the Romans under Con-



stantine, and when that Emperor resolved upon the appointment of proper men—veterinarians—whose duties were to attend solely to the diseases of the feet, their first attempt at the application of a shoe consisted merely in the fitting a small segment of brass or iron into those parts of the outer circumference or wall, which had been broken or fractured, and thus to avoid exposure of the sensitive parts within. Non-interference with the sole and frog has been practised by eminent men in France and on the Continent generally before the birth of Goodenough, and his so-called discovery was actually behind the introduction of the more scientific and likewise elegant method introduced by Charlier.

One thing, however, we do gladly accord to the American, that is, *his* method of bringing the frog to the ground. All men of common sense—knowing the baneful results—have always avoided lowering the heels to the extent Goodenough advocates, viewing the practice to be “like robbing Peter to pay Paul,” well knowing that if the frog be

left alone it will grow and so reach the ground in time. Goodenough, however, insisting upon effecting this at once, cuts away the heels, and in many instances which have come beneath our notice disease has been the result.

The principle, we are told, is promulgated on the score of humanity to a noble creature ; if so, we are of the opinion that the fetters of a patent frustrate that object if it ever existed. When so many lame horses abound and a remedy is urgently called for, humanity, we may consider, coming to the rescue, would gladly and freely give all she possesses to abate the evil, and this system, although American, if Goodenough for the emergency would have proved far more lucrative to the promoter, and a greater satisfaction to the horse-owning public, if it had been divested of the trappings and emblems of Government protection. Such statements of humanity remind us of one of the old socialist hymns, two lines of which are as follow :—

“ Man looks on man with iron eye,  
And flees for self alone.”

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### STRANGE HORSE DISEASE.

A CORRESPONDENT of the (San Francisco) *Rural Press* writes as follows in reference to the periodical occurrence of disease among horses in his district :—

“ While the epizooty is prevailing pretty generally throughout the State, and the word epizooty is so common that when two neighbours meet it is, “How are your horses?” or “How is the epizooty?” and even the little ones are applying the term epizooty to everything that they hear cough, I thought it would be a favourable time to draw out something through the *Press* in regard to a disease affecting horses in these parts commonly called the crazy disease. Perhaps this is not the correct name, but every one will know what is meant by the term. Now this disease, if disease it is, is far more alarming and serious in its consequences than the epizooty, for an animal once attacked with it either dies or is rendered

entirely useless for life. Horses are attacked with this disease generally in the summer and fall.

The symptoms are these :—If the horse is at pasture he will leave the band and go by himself ; is very foolish about his head ; won't allow you to put your hand on it ; put a halter on him and try to lead him he will rear up, fall back, and act as though he had never had a halter on before ; and has a great aversion to stepping over anything on the ground, and goes with his head inclined towards the earth, and drags his feet along and seems afraid of every object he sees.

He falls off rapidly in flesh, and soon after taking the disease becomes very poor. I have known them to go up on some high point in the mountains, and stay there until they died. The time of year for horses to take this disease is close at hand, and if there is any remedy or preventive it is desirable that every one interested should know it. I have been a reader of



the *Rural* for two years ; have never seen any mention of this disease ; have lost twelve valuable horses in the last three years with it, and others in these parts have been greater sufferers than myself. Now this is my apology for thus trespassing upon your time and patience.

Bear Valley, May 2, 1873.

There is no doubt that the affection described in the foregoing account is that known as malignant catarrh, and variously termed "malignant coryza," or "coryza gangrenosa ;" catarrh of the frontal sinuses, &c. By these is implied an inflammation of the membranes lining the nostrils and cavities of the head, accompanied with a discharge or flow of mucus, or mucus and pus, according to circumstances. Happily the disease, so general as it appears on the Continent of North America, is little known here. We rarely see catarrh here except in a mild form, amenable to ordinary and simple remedies, and only when it assumes conditions of a complicated character is it fatal. English veterinarians recognize it then as *purpura itæmorrhagica*, and have no difficulty in tracing its cause in previous great debility, colds, and most likely an attack of influenza. Occasionally, however, we see an isolated case of the genuine form of malignant coryza among horses, especially young ones, as a sequel to strangles, after the animals have fared badly during the previous winter, and are put under domestication, when the combined effects of housing, dry food, &c., are exerted upon them. Among those imported from a cold climate we have seen the greatest number of cases, and likewise the greatest fatality. Iceland and Shetland ponies purchased in large numbers for the collieries of the north of England furnish valuable observation in this particular, and probably, from the causes already named, suffer more than any other kind.

It is not confined to the horse: the ox tribe exhibits in this country, taking all conditions to which native animals are exposed into consideration, a greater proneness to the affection, and by some it has been named

"glanders of the ox." This is not inappropriate, as great similarity exists, and nice discrimination is needed to make out a true state of matters. It is not unlikely that animals suffering from the disease may be suspected of having the plague—rinderpest; indeed, we know that in many cases during 1865-6, ignorant men pronounced such to be the case, and needless restrictions were enforced, to the detriment of whole districts.

The first causes are those which produce debility or general weakness of the whole system, hence cold and wet seasons during spring and autumn, are prolific periods, particularly when they are of long continuance. The animal is seized with a cold in the head, the nose and eyes are swollen and discharge copiously for a time a thin fluid; by-and-bye the membranes of both are red, and highly inflamed, and become dry; the eyes are dull and hazy, and the animal is nearly blind. Pain is evident in the head, and with the great amount also present in the eyes, the animal avoids being touched; as described by the correspondent, "he is very foolish about his head." A scanty discharge of pus comes from the eyes and nose, and the membranes assume a leaden colour; a painful cough, present from the first, tortures the animal very much, and the breathing becomes short and quick; the pulse is rapid, weak, and small, thirst is constantly present, and the dung is hard, black, and voided in small pieces; sometimes diarrhoea is present from the first. Later the membranes slough off in places, leaving large ugly ulcers, discharging blood and ichor. The animal exhibits pain in the bowels, and sometimes by lameness also in the legs, and in oxen the feet and horns come off. As the disease advances the sinuses or cavities in the head are filled with matter—pus, the bones soften and swell, and the face looks much larger than usual; and eventually the brain itself is involved, being found to be softened after death, and sometimes invaded by a large abscess. The greater number of animals seized usually die, because, as a rule, they are not

observed until the disease has assumed serious proportions.

At the onset the animal should be treated with stimulants, such as ammonia, with which potash is advantageously combined, and in the later stages mineral acids are the most useful. The head may be bathed with spirits or vinegar diluted with water, or, what is better, bags filled with ice may be applied, but they must not be large, as the animal is so weak that his head is now almost too

heavy to be supported. It is also advisable to open the sinuses from the front, wash them out with some disinfectant agent, and leave a seton hanging from them to promote discharge.

The only true principle by which the disease may be moderated are those which point out the necessity for greater care over the animals during cold and wet weather. Good food and less exposure are the main things to be observed and carried out.



## The Country Gentlewoman.

### HANGING BASKETS.

THESE baskets are among the prettiest ornaments a room can have. They are in universal use, and the florists keep a large supply of them. But these are quite expensive, and besides the florist is seldom seen in the country, where all through the summer flowers bloom by the wayside, in the fields, and grow in thick luxuriance through the woods, and where in winter every home has its own greenhouse plants. It is not to the florists one need go, when, with a few simple directions, any ingenious boy or girl can make pretty and inexpensive hanging baskets. We will give some such directions for those who desire them.

First, take a wooden bowl of any size you desire ; then obtain from the woods a quantity of rough, crooked or knotty twigs or roots ; soak them in water so as to make them pliable. Varnish the bowl with asphaltum varnish ; screw in rings for the hanging cords to pass through. When the varnish is dry, arrange and fasten these twigs or roots on the bowl in any way your taste may devise. The best way is to bend one of them round the top of the bowl and fasten it securely down ; then twine several pieces round the same way, till the whole surface of the bowl is covered. Fasten one round the top rim of the bowl, by way of finishing it, then varnish these branches like the bowl, and your basket will be completed. If you prefer, you can take, instead of twigs and roots, cones, acorns, &c., and arrange them on the outside of the bowl in the form of flowers, or any pattern your fancy may suggest and then varnish them. Always

use copper nails for fastening the twigs or cones on the bowl.

Baskets may also be made by procuring some small sticks of the Oak or Maple cut of equal lengths, according to the size of the basket desired. After the sticks are nailed together, a wooden bottom must be fastened down. This basket is easily made, and looks quite pretty when covered with creeping plants.

Other pretty baskets may be made by shaping wire in the form of a basket, painting it green, and intertwining Moss through the wires. White, grey, or green dry Moss is the best for this purpose.

Coco-nut shells or sea shells, if you have them, can be made into small hanging baskets, and are very pretty.

All these baskets should be covered in the inside with thick, green Moss, both to keep the soil moist and to make the basket look neater. Among the list of common plants suitable for these baskets are the Toad Flax, Ivy, and *Lobelia speciosa* ; the trailing Moneywort (*Lysimachia Nummularia*), with its yellow flowers, is very beautiful.

A sort of Fernery can be made by bringing from the woods Ferns and Mosses ; then arranging them in the basket, putting Moss over the soil that covers the roots.

These baskets, with their green trailing branches and bright flowers, will materially heighten the pleasant aspect of a drawing-room or parlour, or garnish a verandah or window in the summer, as will be found should any of your numerous readers attempt to make them.—*Annie W.*

*HOW TO MAKE A SALAD.*

THE abominable practice of serving salad with cheese has received some rude shocks ; and, thanks to the influence of continental travel, the Englishman browses as contentedly as any Frenchman of them all. The philosophic consideration of a salad results in its division into three heads—the vegetable part, or foundation, the dressing or sauce, and the accessories. For a salad to be really perfect it must be freshly gathered, and if it can be obtained free from mould or gravel it is better to eat it unwashed ; but if these conditions cannot be complied with, the salad must be very carefully washed and very thoroughly drained. English and American salad eaters are unhappily fond of cutting up Lettuce and Endive into fine shreds, an operation at once destroying the crispness, character, and lightness of the dish. Lettuces should be torn asunder and broken in pieces by the agency of the fingers alone, and should on no account be outraged by the contact of steel. The fragments can be dried perfectly by being shaken in several napkins until the superfluous moisture is absorbed. The same remark will apply to Endive, but Endive and Lettuce should never be mixed together in the same salad bowl. As condiments, however, an immense number of herbs may be used, as Water-cresses, Tarragon, Burnet, Garden-Cress, Chervil, Basil, Mint, and Marjoram. An excellent salad is that called *Barbe de Capucin*, and a good salad may also be made of unripe Tomatoes, or even of the common Dandelion, which grows wild in every country lane.

Salad-dressing demands considerable skill

in all its preparation. Spain declares that to make a good salad a miser should pour out the vinegar, a spendthrift the oil, a wise man the pepper and salt, and a madman should mix the whole together. This is all very well in a rough way, but it is of very slight value practically, as on the exact proportion of the oil to the vinegar depends the success of the whole operation. The correct proportion of oil to vinegar is as three to one, and the quantity of pepper and salt must depend much upon the individual taste. As a general rule, however, sufficient salt should be put in, pepper may be more sparingly used. It may not be amiss to remark that the very best and nuttiest Olive oil should be used, and that the only vinegar fit for salad dressing is the French wine vinegar. In a salad of Cos Lettuce Tarragon vinegar should invariably be used. For all salads intended to be eaten with roast meat or poultry, or even with fried or boiled fish, the above four elements will make the best dressing.

The *Mayonnaise* is a compound sauce made of oil, pepper, salt, mustard, Tarragon vinegar, the yolks of raw and hard-boiled eggs, and aspic jelly. *Mayonnaise* is the foundation of the cold forms of *Sauce à la Tartare* (so excellent with trout or eels), *Sauce Remoulade*, *Ravigote*, and *Poivrade*.

The accessories of a salad may be described as everything which is good to eat cold. Olives, capers, anchovies, sardines, herrings, prawns, shrimps, crabs, lobsters, Italian and German sausages, ham, and all sorts of cold fish, flesh, and fowl can be advantageously introduced in a salad.—*Rural*.



# THE COUNTRY GENTLEMAN'S MAGAZINE

A BOOK FOR THE COUNTRY HOUSE

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SEPTEMBER

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## *AGRICULTURAL COTTAGES IN IRELAND.*

WITH a view, it is to be hoped, to legislation on the subject, the Government has caused to be instituted an inquiry into the condition and requirements of the Irish agricultural labourer in respect of his house accommodation. Such action is greatly needed in England and Scotland, but the utter wretchedness of the labourers' cottages in Ireland makes the inquiry a peculiarly important one. When Parliament was sitting, the Marquis of Hartington, in reply to a question from an hon. member, stated that it would be impossible to frame any measure upon agricultural cottages in Ireland this year; but there is every likelihood of such a Bill coming up for consideration before long. The present Blue Book is interesting as a precursor of any legislative enactment on the subject. Those who have travelled in the "Emerald Isle" could not fail to notice the abject state into which the population is thrown on account principally of the insufficiency and inefficiency of the cottages built for the rural labouring classes. Comparisons have often been made between the pigsties erected for the porcine species in England and the tumble-down cabins used as the domicile of the Irish agricultural labourer and his children, and we have heard many express their opinion that the former erections are far superior in almost every respect

to the latter, and that they were certainly more substantial. Of course, within late years the healthy influence of the agricultural societies has effected great improvement in this respect. Farmers, too, evince more interest in the welfare of their men than was their wont, and the slight diminution of absenteeism which has lately taken place has already caused its mark to be made in the social state of the men, women, and children. Much has been said as to the impossibility of ever inculcating lessons of cleanliness and thrift into the minds of Irish agricultural labourers, but there is no calculating the benefits derivable from good house accommodation. Where the surroundings are unpleasant, and the hut in which they reside a mere excrescence of mud, it is hardly to be expected that their habits should be of the best, and their social condition very refined. Let the house be a fitting receptacle for its human inhabitants, and let the accommodation be comfortable and substantial, and it will soon be apparent, we think, that the Irish "Hodge" and his offspring are as susceptible of social and intellectual improvement as their English and Scottish brethren.

The Blue Book commences with the statement that the attention of Her Majesty's Government in Ireland has been for some time directed to the question whether any

amendment of the existing law could be made for the purpose of promoting the construction of an improved description of labourers' dwellings in that country. Queries were therefore submitted to the Poor Law Inspectors in order to elicit some information about the matter. These questions have reference, in the first place, to the tenure of the labourers' dwellings; secondly, to the quantity of land allotted to the men; and lastly, as to the rent, letting, &c. The suggestions made by several high authorities are of an extremely valuable nature, and will prove of infinite service to the Government in legislating on this matter. No fewer than ten poor-law inspectors in all parts of the country responded to the invitation, and before submitting their own opinions, each of these gentlemen consulted the landlords and farmers of his district. The information they communicated to the Government must therefore be considered of a very valuable kind, and of sufficient weight on which to base future legislation. The first communication from Mr Henry Robinson relates to Carlow, Dublin, Kildare, Meath, Queen's County, Wexford, and Wicklow. The result of that gentleman's inquiries leads him to recommend that the tenure should be monthly or weekly, determinable by either party on seven days' notice to quit. The remarks of Mr R. Hamilton (whose district comprises the counties of Antrim, Armagh, Down, Dublin, Londonderry, Meath, and others), on this head seem to embody all that is desirable. He says that the term of hiring varies in different localities, the labourers being hired in some places by the year, in others by the half year, in others again by the month and sometimes by the week. He is therefore of opinion that if the labourer is to be made the tenant as well as the servant of his employer, the period of his tenure should exactly correspond with the length of his services, and should terminate when his employment ends. The tenant should not be entitled, Mr Robinson thinks, to compensation for disturbance, but should

receive from the landlord the value of the crop in his ground at the time the notice was served. As regards the quantity of land necessary to be attached to the labourer's cottage, Mr Robinson's opinion seems to be generally accepted among the other inspectors. He says:—"The general opinion is that one rood of land is sufficient for a labourer, and in that view I entirely concur; but it has been represented to me that in certain parts of Ireland the land near the cottage might be of little value, and perhaps only partly reclaimed, and that under such circumstances it would be desirable that the landlord should have the power to give the labourer more than in other places. I would therefore suggest that the Act should provide that the land attached to the cottage must not exceed 1 statute acre." An acre of land is about the maximum which most of the landlords seem inclined to give, the opinion being that if the grant exceed that too much of the labourer's time is spent in cultivating this allotment. We should think, however, that in many cases where the man has grown-up sons, this grant might advantageously be increased. The evidence is practically unanimous on the point that a landlord who builds labourers' cottages for his tenant, or permits him to build such, ought to make it a condition that the farmer lets the tenements only to *bona fide* hired agricultural labourers. We quite agree with Mr Robinson that it "would also be desirable that the landlord should make the tenant embody in his agreement with his labourer a clause against taking in lodgers, or sub-letting the tenements," but that in other respects the farmer and his labourer should be unrestricted in their dealings with each other. As respects the rent of the cottages, the suggestions vary from 1s. to 1s. 6d. and 2s. per week, but as a general rule the sum recommended does not exceed £5 annually.

As usual there is a great discrepancy in the various estimates of the cost of erecting suitable cottages for labourers. It is estimated by many that £50 might easily cover the



expense of a single building, while others contend that with economy comfortable homes cannot be erected under £70 or £80 each. Some, again, cannot see their way to effect such an improvement, unless the landlord agree to disburse from £100 to £120 per cottage. It may be said that all the estimates are more or less correct, inasmuch as the economy of the thing is guided to a great extent by local convenience and advantages. In Ireland, however, as a rule, *materiel* is much cheaper than in England or Scotland, and it may be accepted as a fact that cottages can be erected at a cheaper rate there than they can be in this country. In respect of the size of the cottages, one of the Inspectors, Mr G. F. Roughan, says that the designs published by the Board of Works are not suited to the requirements of the country, being far too expensive. What is most required to improve the condition of the labourers is that they should be provided with fair substantial dwellings at a moderate cost. "A comfortable thatched house with a living room reaching to the roof 12 by 16 feet, with two bedrooms off it 12 by 7 feet, boarded and ceiled, erected on a cheerful site, convenient to a public road, would be much more acceptable to the labourer than an expensive slated house in which, as they say themselves, they would be perished in winter and broiled in summer." Landlords and proprietors, he adds, would prefer slated houses on the

ground of durability, but he thinks that the Board of Works should not refuse to permit the erection of thatched cottages. We may add that the suggestions generally concur in the idea—which is held by the majority of the labourers themselves—that while thatch is warm and cosy in winter, it affords great coolness to the inmates during the summer months.

It appears to us that the present regulations for loans from the Board of Works for the purpose of improving the cottage accommodation in Ireland, present considerable difficulties to small proprietors and farmers borrowing money for a few cottages. Elaborate plans and specifications of the proposed improvements require to be provided; Ordnance maps have to be prepared before the money can be got, and detailed estimates of the expenses made. To provide all these *minutiae*, a professional man has of course to be employed, and a large expense is thereby incurred. As Mr J. E. Vernon says, "No farmer with 40 or 50 acres will face this." To carry out the idea of the Board of Works we quite agree that that office should be represented in every county by an intelligent man, whose duty it would be to see that the cottages were properly built and properly maintained. This would appreciably curtail the trouble and expense which at present are necessary as a preliminary to obtaining a grant of public money.

*DOWN AMONG THE CATTLE SHOWS.*

**Y**ORKSHIRE has attracted a large share of attention in the agricultural world this year. Wherever the Royal Agricultural Society chooses to go—and like its sister association for the advancement of agriculture in Scotland, it visits annually those parts of the country where its aid is likely to be most required—there will be seen congregated the highest authorities in farming, as well as the best domestic animals raised in the island. The largest county in England has been plentifully supplied with exhibitions of stock this season. Besides the Royal, there was, of course, the annual Show of the Yorkshire Agricultural Society, which proved a great success financially, while the quality of the exhibits, both in the cattle and horse departments, was beyond question fully up to, and in the latter section surpassing those of previous years. Besides these two important exhibitions, which have been held since the commencement of July (and which we specially reported), Yorkshire has within the last fortnight been the scene of other contests which, within their own spheres have been of an equally exciting and commendable description. The Cleveland Agricultural Society held its annual Show at Yarm this year, when, although there was a slight apparent falling off in the number of entries, the quality of the stock was fully up to the average mark. The cattle, sheep, and pigs entered numbered seventy-nine altogether, and the horses—always a popular section of an exhibition with Yorkshiremen—reached an entry of 252. The judges in the shorthorn classes—Mr Samuel Rowlandson, Newton Morrell, Darlington; Mr Thomas Outhwaite, Goldsborough House, Knaresbro'; and Mr Henry Peacock, Mount Vale, York—awarded the first premium for the best bull to Mr D. Hartley, a local exhibitor, for a very good animal. The cows in calf or in milk were a

good class, and here Mr Robert Emmerson was successful with a nice level animal. The district prizes, as a matter of course, excited the keenest competition, and there was an entry of many fair class animals. Here again Mr D. Hartley secured the palm, with Mr J. G. Hebron coming next. Among the local exhibitors of cows Mr Thomas Moore obtained the highest premium, and in the two-year-old heifer class Mr R. Emmerson repeated his victory in the open class by carrying off the first prize. There was an interesting competition in the cottagers' cow class, the highest honours being given to Mr William Stainsby. The exhibition of sheep was a fair one, and the exclusion of the more notorious exhibitors of pigs allowed a capital district competition among the porcine tribe. Horses proved the best section of the Show in point of quality. There does not seem to be any competition for stallions at the Cleveland Society's Show, but the classes for mares were well filled. As was to be expected, that capital horse, the Cleveland, took the place of honour on the prize list. For the best mare "stinted to a Cleveland horse," Mr T. Johnson, Deighton, Northallerton, obtained the prize. Passing over coaching horses and ponies, we come to the hunters, which were a capital display, and proved, as they invariably do in Yorkshire, a source of much delectation to the spectators. For brood mares Mr E. Armstrong, Danby Lodge, Yarm, came in with a nice looking animal, beating Mr H. Watson, Newbiggin, Filey. The silver cup offered by Mr F. A. Millbank, M.P., was sharply contested for. Here a well known equine exhibitor, Mr J. M. Tattersall, Musgrave, was successful, with Mr F. P. Newton, Norton, taking second. The premium of £12, 12s. for the best hunting gelding or mare was secured by Mr R. Brunton, and the leaping prize went to Mr



P. Wallis for an animal who took his "difficulties" with great gameness. The agricultural horses formed a good show. For brood mares, Mr R. Watson's grand animal was decorated with the winning card.

If the Cleveland Show were good, that of the Easingwold Agricultural Society was not less meritorious. There was a fairly numerous array of cattle, sheep, and pigs, while horses fell but twenty-two short of the entry secured by the Cleveland Society, numbering 230. There was no less than £350 distributed in prizes at Easingwold, and it is gratifying to find that the Society is liberally backed in its endeavours to improve the local stock by several well-known gentlemen residing in the locality. For the best short-horn bull above two and not exceeding three years old, Mr Samuel Wiley, Brandsby, deservedly secured the first position. The young shorthorns were a very good class, Mr C. M'C. Swarbreck carrying off the principal honour. In sheep Mr J. Woodward was accorded the premium with a well developed pure Leicester ram of excellent quality; and for the pen of five ewes for breeding purposes the prize given by the Hon. Payan Dawnay went to Messrs C. and W. Dovenor, Bedale, who were successful also in the shearling gimmer and the tup lamb classes. Pigs were on the whole well represented. The horse department was well deserving of the encomiums bestowed on it by the judges, the quality throughout being exceptionally fine. For a mare with foal at foot Mr W. Mazeen was adjudicated premier position, and Mr W. Hornby second. The best contest, however, was that for the £20 plate given by the members and friends of the old-established York and Ainsty Hunt, for mares or geldings of any age. Last year this much-coveted honour was won by Messrs Batty, of Myton, with Copgrove, and this year the premium went to Mr T. H. Hutchinson, who, as we stated last week, carried off a first prize at Harrogate with his capital four-year-old Jester. Lord Walsingham's prize of £15 for five-year-old mares or geldings was awarded to Messrs

Batty; and in the class for four-year-olds the liberality of Mr F. A. Millbank, M.P., was apparent here as in the Cleveland Society's exhibition by the contribution of a prize of £10, which was gained by Mr Robert Metcalf, Malton. The other classes were of great excellence, and the exhibition altogether was a successful one. At the luncheon Lord Walsingham, the president, made some remarks upon land tenure and agricultural Unions. In reply to the toast of his health, he said:—

Some of the property which gave him an interest in Yorkshire had been in the possession of his family for nearly 300 years, and he was proud to say that the names of some of the tenants who now held the farms had been almost as long connected with the occupation as that of his family had been connected with the ownership. (Applause.) He felt that he need not assure them of the interest he took in the Easingwold Agricultural Society. The encouragement of local competition must always lead to a general improvement of stock, and to a better knowledge of the results which had been obtained in farming under various circumstances, but at the same time he agreed with Sir George Wombwell that an amalgamation of small societies was desirable. (Hear.) They had had, during the session of Parliament, several attempts at legislation upon agricultural questions. First, there was a Bill for improving the relations between landlord and tenant. He was far from being opposed to any measure which might be calculated to remedy existing evils, but let us first be sure that evils exist. Now, it seemed to him that in the very large majority of cases the relations between landlord and tenant were satisfactory to both. There were no doubt exceptions, and it was possible that something might be required which a Bill in Parliament would supply, but many of the exceptional cases depended upon that which no legislation could establish if it did not naturally exist, namely, a tone of proper and right feeling, which enabled landlord and tenant to act towards each other on principles of mutual concession and forbearance. That Bill, when first presented to Parliament, was an impossible Bill. It would only have created work for a host of arbitrators, and valuers, and lawyers, all excellent people in their way no doubt, but very costly. (Laughter and applause.) His impression of that Bill was that it would have been worse than a double Education Rate upon the land. (Laughter.) He need not remind them that land was not in a position to bear any such extra burden. (Hear.) Next was the question of the wages of agricultural



labourers, a subject which had occupied considerable attention during the past year. Unions and combinations had been organized amongst them, and a system of compulsion had been attempted to be exercised upon the employers of labour, which had, in many districts, created an unfortunate feeling of animosity, and a want of confidence which must necessarily operate in a manner prejudicial to the interests of both classes, and detrimental to the proper cultivation of the land. It had been said that this was not the landlord's question, but to his mind there never was a question on which the careful and unbiassed judgment of those whose position might enable them to act as mediators and advisers was more required to be exercised. The more he looked at the question the more firmly was he convinced that there was one principle above all others on which, in common with all trade combinations, it would best be treated. (Hear.) They knew that in joining the unions the men became subservient to the directions of a managing committee, and they were no longer free agents, no longer free to make their own terms with their employers, but liable at any moment to be called upon in the interests of the society to which they belonged to leave their work, and it might be to ruin a liberal and generous employer. (Hear.) No man could serve two masters, and therefore how was it reasonable or possible for men who put themselves in that position could expect to be treated with the same confidence and consideration as if they were free from such influences? (Applause.)

The Herefordshire Agricultural Society has altered the date of its exhibition from October to August this year, and the show, which took place at the county town the other day, was in every way one of average excellence. In the home of the Herefords it is but natural that that excellent breed of stock should take precedence of all others. The show of these cattle was a good one. Mrs Edwards, of Wintercott, was most successful, taking the principal prize for bull, cow, and offspring, that for yearling bulls, and running second with a bull calf. Mr Philip Turner won with his pair of yearling heifers, and took second prize with his aged bull Provost, being defeated by Mr J. E. Spencer's Von Moltke. Mr Thomas Rogers, of Coxall, was assigned the best place for his five-year-old cow, which not only won in her class, but obtained the special prize of £10 for the best Hereford cow or heifer, and the special prize of £50, given by the citizens of Hereford for the

best horned animal. Shorthorns were this year admitted to the exhibition, and here Mr R. Stratton was very successful in the bull class. The show of sheep was much better than usual, and this department is certain to be improved by the change of date. The classification was, moreover, judiciously extended on this occasion; the Shropshires, which came first in the list, having six classes. In the class, however, for wether lambs, there was no entry; and in all the others, except that for twenty ewes, Mr Pulley was placed first with sheep of very good character, his shearling ewes being deservedly given the £20 prize for the best pen of sheep in the yard. Mr R. Tanner obtained the first prize with twenty good two-shear ewes, but Mr Fenn's grand ram, second at Royal Agricultural Society at Hull, was unaccountably passed over without a commendation. Horses and pigs were very well represented.

Across St George's Channel the show season is just at its height. The Queen's County Agricultural Society held its display this year at Maryborough, where, with favourable weather, there was a large attendance of interested visitors. In the shorthorn classes there were forty-four entries, and the quality of the animals is reported to have been very fair. A promising looking bull calf, bred and exhibited by Mr Humphry Smith, carried off the prize in his section from six competitors, and Mr Franks' calf, Rhodein, took second prize. The *Leinster Express* remarks:—Those who talk of the deterioration of horses in Ireland would be encouraged by such an exhibition of horses of all classes as that of Maryborough. This department of the Show was a credit to the locality, and in our opinion was better than it has been in any previous year. The special prize offered by Mr Cosby, and the hunter prizes, were all well competed for, and all the entries complied with the condition which makes it imperative that every winner must be likely to make a hunter. There was also a good show in the classes for farm horses, sheep, and pigs.



*A DAY AT TIPTREE HALL.*

THE invitation which Mr Mechi so liberally gave to all who were interested in agriculture has been as generously taken advantage of. From all quarters of the country those engaged in the cultivation of the soil came to visit Tiptree Hall. We are well aware that Mr Mechi's theories have not been approved of by all men; we know that even in his own immediate neighbourhood they have been looked upon with calousness. But it came to our knowledge long ago that Mr Mechi was appreciated by such enterprizing agriculturists as Mr Sadler, who, unaided, was the first tenant-farmer to introduce Fowler's steam-plough into Scotland, and whose example was followed shortly after by some of the most eminent farmers in the Lothians, who chose different systems of disintegrating the soil by the motive power of steam. We need only mention the names of Mr George Hope, of Fentonbarns—whose dissociation from the farm upon which he was brought up has excited so much discussion, some of it quite uncalled for, who fancied Howard's "Round-about," as it was called, and which worked well; Mr Begbie, who bought Fowler's; and Mr Reid, Drem (whose father, if we forget not, was the first to introduce a steam thrashing-mill into Scotland), who preferred the "come-and-go system" of Coleman. Lord Kinnaird also was not too proud to take a leaf out of Mr Mechi's book, and to declare that he profited by the lesson therein taught. All these gentlemen admired Mr Mechi for his determination, at whatever cost, to increase the fertility of the ground by deeper cultivation, and by more liberal treatment in the matter of manures. Mr Mechi's balance-sheets, as a rule, have shewn that his theories were profitable in practice. Some people have cavilled at the figures, but none have proved that they were wrong. And of one thing we are cer-

tainly assured, that Mr Mechi's name in future times will be regarded as that of one who assisted very materially in making British agriculture what it was in the latter half of the nineteenth century.

Mr Mechi has arrived at an age at which most men would be inclined to lie idly upon their oars. He has won laurels, it might be supposed, sufficient to decorate his brows. Have not his books and articles been quoted in newspapers all over the world, and his ideas permeated those who have a relish for agriculture from John o'Groat's to Wagga-Wagga. "Still he is not happy," because in his own country he has not yet been able to succeed in impressing upon his fellow-labourers in the great field of meat production the absolute necessity of thorough drainage, of deep cultivation, and of liberal treatment of the land with manurial substances, particularly with those kinds which are made upon the land by cattle under cover.

It was a treat to go over the farm and hear what we may well call "the old man eloquent" expatiate upon the conditions under which he contrived to make a barren waste to "bloom and blossom as the rose." No merely figurative words are being used when we say this—they are sober truth, as a portion of the unreclaimed common at the other side of the hedges of one or two of the fields will shew. From a swamp, over which snipes were wont to flutter and be brought down by the gun of the now owner some thirty years ago, an ornamental water has been formed, upon which a pleasure-boat can be rowed, where pike, and roach, and tench breed, and trout might have been kept but for that "fresh-water shark" with the long nose mentioned first. The draining of this bog relieved the adjoining farmers of their surplus water; it enabled Mr Mechi, while doing a good turn for himself, to confer benefits upon others.

Those who had too much water upon farms above him got rid of it; those who had too little in farms lying below Tiptree Hall have gratefully expressed their thanks for the surplus water his capital, intelligently applied, distributed to them in dry seasons. Tiptree Hall, where only a third of a century ago furze and heather and weeds grew in no stinted way, is now surrounded by fine trees and shrubs of marvellous growth. It is as sheltered a nook as the most retired country gentleman could desire to occupy, and yet these umbrageous stems have been planted since the time the owner attained middle age. This shews what energy, along with money, can accomplish in a short space of time. Mr Mechi attributes this speedy development to deep cultivation, and to the manner in which he applied the manure to the roots of the trees. He shows, with justifiable pride, in his greenhouse, a camellia of beautiful growth, whose bearing powers are as great as its dimensions, and he ascribes the merits of the plant entirely to the fact that he had taken care to see that the liquid manure applied had penetrated to the roots. Surface applications are not, in Mr Mechi's opinion, of any account. The expense of such applications are great, but the returns altogether unsatisfactory. More than eighteen centuries ago a notion similar to that which Mr Mechi now holds was expressed. The roots of the tree must be cared for if the branches are to flourish.

To come more particularly to the farm, we must say that the cropping is as judiciously distributed and grown as skill combined with capital can make it. With that penetration, which has all along distinguished Mr Mechi in his agricultural operations, he resolved to effectually drain the land he had acquired; and it was his wish that the farm should, if possible, possess the material advantage of a constant and unfailing supply of water. The system of irrigation, introduced into Tiptree, is very effective. Numerous hydrants are distributed over the farm, each of which irrigates 11 acres, and with a success that

was the reward only of unceasing and expensive perseverance, Mr Mechi has managed to extract from a cold marsh a stream of translucent water, which at present gives him a supply of no less than twenty-five gallons per minute. The field upon which this exceptional and valuable adjunct to the farm was discovered, was formerly bog land composed of twenty varieties of soil; at the present time it is bearing a very good crop of wheat. Mr Mechi states, that his mode of cropping is invariably to take barley after wheat. Last year, the average yield of barley was about 6 quarters per acre, and of wheat the product—in the previous year, a bad one—averaged 5 quarters per acre. The sheep are ultimately folded, after the wheat stubble, with Indian corn and cake, but if this is not done, home-made manure is put upon the land. Instead of taking barley after wheat on the clover ley, red wheat is taken after white wheat, because, as Mr Mechi rightly surmises, “it would not do to take the same sort of wheat twice.” In exceptionally favoured years the yield per acre amounts to as much as 7 and 8 quarters—a clear proof, Mr Mechi thinks, of the advantages of thin sowing and liberality in the use of manurial substances. Ryegrass is then sown in the barley, and after two years gives way to peas, which are sown very early in the spring. Peas are followed, in the same year, by the ordinary white turnip, fed off with sheep on corn and cake. In December wheat is again sown. Once in eight years Mr Mechi takes red clover. In order to save as much time as possible—and it can easily be imagined that a fortnight will be of infinite value to the owner of Tiptree—the haulms of the peas are taken off the land to the cattle-yards. While the land is being cleaned, therefore, the pea haulms thus undergo a process of hardening in the yards which enhances their value, and enables the land to be cleaned for the next crop. This year the crop of blue peas has realized Mr Mechi £26 an acre net, the haulms going back to the land.



As regards manures, Mr Mechi mixes from two to four bushels of salt with guano; he refrains from using phosphates extensively, because there is, he thinks, a good deal of that element in the soil itself. He is very careful in the use of superphosphates, as he believes that where indiscriminately used they are seldom very effectual. It must be borne in mind by all that the land is not manured either for turnips, peas or wheat. The former are of course folded off, and the land is thoroughly manured for the following crop. For the barley, however, guano mixed with salt is applied to the soil. Six bags of seed per imperial acre is the maximum amount of seed sown for barley, Mr Mechi putting it down as an axiom that the "higher the farming the less seed need be put in." The splendid crop of wheat which we saw waving on the fields in July, was sown the 21st of January, five bags of seed per acre being used. We should advise all who have doubts respecting the thin-sowing theory to "go and see for themselves next year." The thing has been tested experimentally at Kelvedon, and the practice bears wonderfully good results. All the wheat is drilled in rows 9 inches apart, and the opportunity of horse-hoeing is never missed. Mr Mechi says that he has horse-hoed no less than twenty-two acres in one day with a couple of horses, but the average amount of work accomplished is about a dozen acres per day.

Subsoiling has been one of the great advantages which, Mr Mechi contends, Tiptree received. Most farmers believe it impossible to extract any valuable ingredients from the under soil of a plastic clay such as Mr Mechi's is; but they would, we imagine, be forced to admit that the subsoiler has effected an incalculable benefit to the poor land constituting this wonderful farm. The pan, Mr Mechi said, was hard and bare: "I broke up the gravel stuff and the hard pan, and the consequence was that things don't dry up and burn as they used to. With drainage," the hospitable Tiptree farmer added, "the basis of my success has been depth of cultivation."

The subsoil plough in use is simply an ordinary iron implement without the mould-board. The land is first ploughed with two horses, and two and sometimes four animals following in the track of the first plough, draw the subsoiler.

As for the stock, Mr Mechi always breeds his own lambs. He is peculiarly fortunate with his youngsters, losing on the average only two each year. The only one that was lost this season died the other day from the effects of sunstroke. Hampshire Down rams are used with Lincoln or Cotswold ewes—colour being an essential in the face—and the produce of the present year are a splendid lot. The animals are not allowed to roam over the pasture. Thirty years ago Mr Mechi expended a considerable sum of money upon hurdles mounted upon wheels for the purpose of confining the sheep. These hurdles are excellently adapted to this purpose. The sheep are never more than twelve hours within the same space, during which time additional food to the nourishing bite received from the herbage, is brought to them. This year they sold for 63s., a considerable increase upon the average of former seasons. Mr Mechi states that he works all the ewes until they are completely worn out, a regular number being drafted each year from the pastures into the courts, where they get "as fat as hogs." The total area of grass and root crops consumed on the farm is 30 acres annually, and upon that limited area Mr Mechi manages to produce meat to the value of £100. The bullocks are kept in an extensive range of courts, provided with the most approved arrangements as to feeding, &c. All the fodder prepared for the stock and horses is put through the chaff-cutter, and all the root food prepared is pulped and mixed therewith. Pulping and chaff-cutting, Mr Mechi maintains, are the true principles of profit in the feeding of stock.

The root crops at Tiptree are unsurpassed by any in the south of England. The kohlrabi bears a particularly promising appearance, and the mangold—manured with fish—

looks as if a splendid crop will be reaped. The cabbages also are wonderfully well developed for the season, and very vigorous and healthy.

Mr Mechi allows his poultry to have free

access to a field of corn adjoining his stead-  
ing, and believes in the views that we have  
always maintained, viz., that if properly  
managed, poultry could be made a very  
profitable source of the farmer's income.

### MR MECHI'S VIEWS ON CROPS, SEEDING, AND RATS.

#### MAXIMUM CROPS.

PROFIT depends upon maximum crops, for it is quite clear that by increasing the produce we diminish *pro rata* the fixed or unavoidable expenses that must be incurred, whether we grow a full crop or a very small one. Rent, rates, tithes, taxes, seed, cultivation, and a certain amount of horse and manual labour, thus become doubled in per-centage on a half crop—too many of which I see whenever I travel. How to get this maximum crop, then, becomes the question. If your land is undrained, naturally or artificially, drain it. Plants will not thrive in the great agricultural flower or plant pot unless there is a hole in the bottom; and, when drained, we must take care not to let the hole get corked or choked by neglect. Then comes a deeper disturbance of the soil, without bringing the raw soil to the surface. Next we must have plenty of under-cover-made manure, unwashed, dried, or mangled; and that manure should be the result of fattening animals with some of the farm produce, but mostly with cake, or something that was not grown on your farm, or, better still, in a national point of view, if fed with the produce of a foreign country. What a pity it is that, having fed nearly half our population (animals in a manurial sense) with foreign produce, we waste their voidances in poisoning our rivers. This robbing of the land is a source of constant annoyance and anxiety to me, for I see in its results and continuance enormous national loss and evils. But to resume. If your land is light, or when your

clay land is dry in summer, have plenty of sheep (close folded within movable iron hurdles on wheels), and let half their food be the produce of a farm not your own—a foreign one preferred. Artificial manures are all very well to use as a sauce or seasoning, and auxiliary to the sheepfold or shed manure, but the two latter must be the “sheet anchor” or main dependence, for they are certainly the cheapest as well as the most certain fertilizers (see Lawes' experiments on sheep-feeding, and his manurial conclusions in the Royal Agricultural Society's *Journal*). On this farm, when we increase or diminish the quantity of meat we make, the effect on the crops is almost barometrical. Ten bullocks less means less manure, and consequently less crop, and *vice versa*. Having thus an abundance of manure, how should we apply it to the soil? I wish most particularly to impress that a vast quantity of manure merely ploughed into the first 5 or 6 inches of soil is a great mistake, for it is thus, to a great extent, useless and wasted; I mean that it is so fixed and retained by these few inches of upper soil, that when the roots descend, as they must and will do as the days get longer and the surface dries, they go down into an empty cellar for their food, which should be there, but is in the parlour above, and therefore unavailable at the most critical and rapid period of development. Therefore, mix your manure with the under-soil, or mix the under-soil gradually with the well-manured top-soil. I am speaking practically, and therefore authoritatively on the



point, which has been too long and too often overlooked, and it is thus that the finishing up or completion of growth and development are so generally incomplete. It is absurd to suppose that the plant roots are content to be confined in hot and dry weather to some 5 or 6 inches of surface soil. To those who doubt on this matter I would commend a perusal of Liebig's great work, "The Natural Laws of Husbandry." Shallow cultivation and shallow manuring cause Britain a loss of millions annually. An experimental acre in each field would soon lead to sound conclusions. If I wished to illustrate the evil consequences of want of drainage, shallow cultivation, and a non-manuring or disturbing of the subsoil, I would ask, "What should we think of our gardener if there was no hole in the bottom of the flower-pot, and if the friable mould only went half-way down the pot, the rest being a dense mass of undrained clay?" Thus it is with much of the great agricultural pot.

#### THICK AND THIN SOWING.

Great losses arise from sowing too thickly. Thick sowing causes a crowded crop, weak stems, and imperfect developments, so down they go, flat (not arched), and consequently fail to rise again. With moderate, or what is miscalled thin sowing, the cereal stems are strong and reedy, and although they bend and arch under heavy rains and gales, they rise again when dry. Like a crowded plantation, our cereal crops, when too thick, are imperfectly developed. The tillering or natural growth of a cereal plant, by the protrusion of horizontal stems, is impeded by crowding, so up the stems go vertically, weak and trembling, and down they come flat under the pressure of a gale or rain-storm. As Liebig justly says, the greatest enemy to a wheat plant is another wheat plant, both under and above ground. The average return or increase of only ten kernels for one in our cereal crops (see Caird, &c.), gives evidence of unnatural and improper sowing; and just as we increase the fertility of our

soil, so should be diminish the quantity of seed, because the enriched soil gives aldermanic plants requiring ample space. Thirty years of practical comparative experiments enable me to draw correct conclusions of best quantities for my land, having, of course, due regard to time of sowing and condition of soil. I am convinced that one-half the seed generally sown would be a great national gain. My usual quantities, if I can sow at the proper season, are—wheat, 4 pecks; barley, 6 pecks; oats, 8 pecks, drilled per imperial acre; winter beans, 5 pecks; spring beans, 12 pecks, drilled per imperial acre. Wheat we always drill at 9 in. from row to row, so as to be able to horse-hoe them well with Garrett's horse-hoe. Oats and barley about 6 in. from row to row. I have grown very fine crops of wheat from 2 pecks per acre drilled, or 1 peck per acre dibbled. In the latter case we twice got 7 qr. 2 bush. of wheat, and  $2\frac{3}{4}$  tons of straw per imperial acre. Thin sowing produces more weight of straw and more corn than thick sowing. One kernel of wheat in each hole will give a plant for about every 5 in. square. We should apply, in degree, the same principle to our cereals as to our root crops—give them sufficient space for development. Owing to our land being in such an unfit state for sowing this spring, I put in 7 pecks of barley, which is an extra peck, and too much, causing more laid corn than is usual, or than is desirable. Every farmer should judge for himself by comparative trials. My crops promise well generally.

#### RATS.

Two thousand rats in one stack were killed, how many escaped I do not know! Here we have a decided case of "penny-wise and pound-foolishism." It occurred the other day, not 100 miles from Colchester. Farmers can recover damages against their neighbours who grow thistle seed; would not a case lie in equity against a neighbouring rat-breeder? for they are easily destroyed if we know "how to do it," and I will tell all I know about it

for the use of my brother agriculturists. Rats are cunning, sagacious fellows; one might fill pages with anecdotes of their intelligence. They are very fond of young chickens, and before we had asphalted floors to our fowl-houses, it was no uncommon event for an old doe rat to kill and carry away several half-grown chickens in a night. An old lady who farmed near me had her dilapidated house so undermined by rats that she had to place her young chickens nightly in a hamper in her bed-room, but even there they were occasionally attacked. Young pheasants and partridges have no chance with them. Even here we dare not leave out at night a hen or chicken, for Mr Reynard takes his nightly rounds, and is a great appropriator. Rats, unlike mice, are not able to live in a corn stack without water, therefore stacks on proper frames are safe. Nearly thirty years ago I bought twelve of Garrett's patent iron stack frames, at £9, 10s. each. They are as good as new now, and, I am told, worth more money than I paid for them, owing to the increased price of iron. Not a rat can live in them, for once down for water there is no return. But I am obliged to look sharp, and see that nothing is placed against the stack to form a staircase for the rats. The neglect and ignorance in this matter is surprising and annoying. Here and there in a county may be found a rat-destroyer who really understands the matter fully. All kinds of paste which require spreading on bread and butter are very dangerous, because the rats carry them about; and a friend of mine lost two valuable dogs in consequence of this practice. The poison

should be mixed with dry meal, and conveyed into the hole by means of an elongated spoon, fixed to a stick some 5 or 6 feet long. The spoon when some distance in the hole is turned over, and the meal remains in the hole to be eaten by the rats, and cannot be carried out. The great secret with regard to arsenic is to mix it ultimately with finely-powdered loaf-sugar before it is mixed with the barley meal or other meal. The sugar neutralizes the bitter of the arsenic. They will not eat it without sugar. Sometimes a little meal is used first without poison, for a few days. Strychnine is also an effective poison, but costly. One main object in having a long stick to the spoon is to avoid the leaving the scent of the human hand or foot near the hole, which would excite the rats' suspicion. One of my men tells me that rats are most particularly fond of condimental food, such as we give to cattle. A cunning rat which was obliged to escape into a certain hole, avoided the trap set there by leaping cleverly just above it. My man placed a piece of newspaper over the trap, and Mr Rat was fairly outwitted, for he ran over the paper. I say nothing about dogs and ferrets, for every farmer knows all about them. Rats migrate in search of food, when they finish a stack or two of wheat, as I have witnessed, they remove in droves, travelling by night to better quarters. Mice should be destroyed by liquid poison as soon as the stack is thatched, for they soon find out that there is water enough in the straw and corn (10 or 12 per cent.) to support life. They breed immensely, and are very destructive.



*OUR SUPPLY OF HORSES.*

THE following is an abstract report of the Select Committee of the House of Lords (to which we referred last month) appointed to inquire into the condition of this country with regard to its capability of supplying any present or future demand for horses. The Committee have not considered the present system of racing and its influence on the breed of horses in the United Kingdom. Thoroughbred horses in England, the Committee remark, have so largely increased in number and value that questions regarding that breed did not require to be considered with the same minuteness as those regarding breeds which it was asserted had decreased in quantity and deteriorated in quality. Some of the witnesses think the fund for Queen's Plates might be applied more efficiently than at present to the improvement of the breed of horses, but the Committee have not gone into that subject. The Committee do not desire to propose any special or detailed scheme for providing army remounts. They think the military authorities should simply remain ordinary customers in the market. They consider the mounted portions of the army were never better horsed than at present, and that any future difficulty in mounting them would be a question of price. They are also satisfied that the question of buying cavalry horses at three or at four years old should be considered simply with a view to what is expedient for the army, and not in any way with the object of encouraging or discouraging breeding in this country. The Committee are not disposed to recommend the formation of Government military studs such as have been tried and abandoned in France.

With regard to the alleged scarcity, the Committee are of opinion that the scarcity complained of by many witnesses is not

caused so much by a deficiency of number as by the supply not having kept pace with the increased demand. Thus, there does not appear to be a scarcity of every class of horse. There is no scarcity of thoroughbred horses. Hunters of high character have increased, indeed, in price like other commodities, and probably more so in proportion, but for those who can afford to pay the price the article can generally be found. Again, in Devonshire and Cornwall, where there were formerly but few horses bred, great improvement seems to have taken place in this respect within the last few years. On the other hand, some breeds, such as the Cleveland bay and the old-fashioned roadster, appear to have become extremely rare, and in some districts of the United Kingdom breeding has certainly declined. It is affirmed, though it is difficult to ascertain the exact truth, that for harness horses this country has had to resort lately to a considerable extent to a foreign supply. But the scarcity appears to be greatest of all among agricultural horses, on which the evidence is practically unanimous. The returns laid before Parliament shew that there has been a considerable decrease lately in the number of brood mares, unbroken horses, and horses used for agricultural purposes in England. In 1870, there were of this class 977,707, and in 1872, 962,548, shewing a decrease of 15,159. It seems surprising that instead of the considerable increase which the great prosperity of the country, and the consequent demand, would lead us to expect, there should be this reduction in numbers. Nevertheless, the Committee are of opinion that this scarcity of agricultural horses will gradually right itself, as the breeding of these horses is comparatively easy and inexpensive. In Ireland the complaint seems



much the same. In 1859 there were in Ireland 629,075 horses, in 1862, 602,894, and in 1872, 549,745; shewing that there were in 1859, 88,330, and in 1862, 61,149 more horses than in 1872. It is clear from the evidence that horses are brought up at an earlier age and taken out of the country, and that there has been a very extensive exportation to foreign countries. However, the recent returns shew a certain increase in the number of horses now bred in Ireland. Comparing the number of horses in the years 1870 and 1871, whilst there is some diminution of horses above two years old, there is an increase of 7200 in horses under two years old.

The following are the causes which in the opinion of the Committee account for the deficient supply :—(1.) The exportation of mares to foreign countries; (2.) The increased profits on sheep and cattle, which, from being more certain and more rapidly realized, are doubly attractive to the farmer, as compared with those obtained by the breeding of horse; (3.) The increased demand consequent on a multiplication of population and wealth which, together with a decline of breeding in many parts of the country, produce a relative if not an absolute scarcity. There are, indeed, minor causes, such as the consolidation of small holdings into large farms, and the exceptional exportation during the Franco-German war. The Committee, having satisfied themselves that the supply of horses has not kept pace with the demand, have considered what remedies were practicable for such a state of things. They have received many suggestions, of which the following are the most important :—

The first, that Government should keep stallions of its own in various parts of the country, is open, they think, to grave objections. The Government would thereby be put in the invidious position of competing with private owners of stallions, and would probably come ultimately to be considered as responsible for the supply of stallions in the country.

Secondly. It has been urged that the unsoundness of travelling stallions being a great evil, there should be an examination by Government inspectors of all stallions covering other than the owner's mares. There is, indeed, some such system in France, where, as Colonel Conolly explained to the Committee "stallions of private individuals, approved of by the 'Administration des Haras,' are exempt from all tax. Those, on the contrary, which are not approved, of pay 400 francs per annum." Nor can it be denied that the object, if attainable by these means, is greatly to be desired. There is not, however, the requisite machinery in England, and it is questionable whether any compulsory examination would not be regarded as an undue interference with the liberty of the subject.

Thirdly. It seems practicable that the Government should give or add to prizes at agricultural shows to stallions passed sound which have covered a number of mares, at a certain low price, in particular districts. It is generally admitted that some agricultural societies have done great good in this way, and the Committee would particularly call attention to the simple and successful regulations of the Cardiganshire Agricultural Association, which, with some modification, might serve as a useful model for other societies.

Fourthly. Any tax operating as a discouragement on a farmer's keeping horses, whether broken or not, should be, in the opinion of the Committee, if not at once abolished, at least considerably modified, while the dealers' license, which does not exist in Ireland, and which only produces £19,175 per annum, should, they think, be repealed.

As regards warranty, which it is urged has caused serious loss and annoyance to the breeders, it would appear desirable that a specified time should be fixed, beyond which a general warranty should not be enforced. And it is to be hoped, however, after the evidence appended on this point, and considering the position in which breeders are put by the great demand for horses, the system of warranty will entirely disappear.



*A FARMER MEMBER ON AGRICULTURAL LEGISLATION.*

THE usual dinner of the farmers and others attending the Thetford wool fair was held lately, and was well attended by flockmasters and wool merchants. In the course of the proceedings Mr C. S. Read, M.P., made the following observations:—I know very well, gentlemen, that we are met for business; but I hope you will excuse me if I take this opportunity of making a few observations on some Acts of Parliament that have either been passed or are in contemplation. I won't refer in any way to party politics; but just to one or two things that have recently engaged the attention of the House of Commons. It is my opinion that the House of Commons is getting into its dotage and wants to be refreshed and renewed. Of that I have no doubt. I say that Parliament, having nothing of importance to do, is contemplating a whole lot of silly, little, rubbishy measures that ought not to engage its attention. You know that last year they passed what is called the Small Birds' Bill, and it is the law of the land at the present time that if a boy should happen from March to August to throw a stone at a cock robin or a hedge sparrow he is liable to be fined and sent to prison. If you don't think that absurd enough, we have a Committee now sitting to consider whether that protection which is enjoyed by certain small birds—certain privileged members of the bird community—should not be shared by every bird that flies—whether wood-pigeons and rooks and all those birds which ravage us should not have a close time? And if we pass a Bill of that sort, I should not wonder if in a future session of Parliament it was proposed that we should have a close season for rats and mice. Last year we had also a Health Bill—a Bill of a most complicated and intricate character, which refers to no less than

twenty-seven Acts of Parliament—and of that measure the Local Government Board have just been good enough to give us a digest. For urban sanitary authorities alone the book contains 286 closely printed pages, and surely that is something hard to read and remember, and still harder to understand. But as if our Boards of Guardians and Sanitary Authorities had not enough to do with that, there was a Bill brought in—not again by the Government, but by a crotchety member of the Opposition front benches—to extend that Act, or, as he said, to amend and supplement the Act of last year. I don't doubt that we shall be able to stop that Bill in its progress, because there are 37 clauses in it, and there are something like 36 amendments on the table already. But let me give you an illustration of what sort of Bill it is. The first clause says that any man who shall sell any milk which is produced from an animal having tubercular disease shall be liable to a penalty of £20. I will ask you whether an aged cow on your premises might not have tubercles in its lungs? I daresay many of them have. Then, if this Bill become law, and you sell a pennyworth of the milk to your labourers, and when the cow is killed by the butcher it is found to have tubercles in the lungs, you will be liable to a penalty of £20. Again, we have got, as you are well aware, a tough nut to crack on the Education question. We are going to put the duty of creating a class of educated paupers upon the guardians of this country. I trust this will be resisted by the guardians, and if it is, I hope it will not become law. And we have also going through this country Her Majesty's Inspectors of Schools, who, in my opinion, are like a sort of "perpetual screw-jack," raising the standard of education to such a height that the agricultural labourers of England will

have a great deal more knowledge than strength; and we shall find in the long run that instead of having muscle and sinew, which are now so valuable, we shall greatly augment the class of people who are now almost starving—I mean those who live by their heads rather than by their hands. Then we have another Bill in which I have taken very considerable interest, and that is the Rating Bill. I hope I meet the approbation of my brother farmers when I say, as a member of a board of guardians, that I think it would have been an extremely difficult question indeed to know how to rate timber—how much to put on it for the year—and that we have come to a wise determination in considering the natural agricultural value of the land on which it grows, and not the value of the timber at all. I also think on the question that when the game is not let, we should not go to the trouble of trying to ascertain how many partridges, hares, and rabbits that land might grow, but that we should again take it at its fair agricultural value, and have only one assessment instead of two. Well, I have been serving on two committees, one of which has just made its report, and the labours of the other I trust are very nearly ended. After two years of enquiry, we made the other day a report on the game question; but I am sorry to say it in no way meets my ideas; I don't know whether it will yours. We have done some little good perhaps—we have taken the rabbit out of the game list, and all the protection the Game-laws gave him is abolished; but the report in its spirit has favoured the poacher rather than the farmer,

and I am quite sure that however much you, gentlemen, as occupiers of land, may dislike to see your crops ravaged with game, you don't desire your landlord's property to be molested by poachers or by trespassers. The other matter to which I will refer, and it shall be the last, is the failure of the Tenant-Right Bill, which I am very sorry to say was withdrawn from circumstances over which I had no control. My friend, Mr James Howard, was suddenly seized with illness, and it would have ill become me to have fought such an important Bill as that single-handed, in a somewhat adverse House of Commons, and I hope the course I pursued will meet with your approval, although I can assure you it was to me a great and bitter disappointment that we had not a good discussion in the House of Commons. And with regard to my hon. colleagues, I may say that every one of them is in favour of the main principle of the Bill—to give compensation to tenants for their unexhausted improvements. Now, Mr Greene has congratulated you in this district upon the good appearance of the crops, and really when you go into the midland counties, as I have done lately, or even go down to Essex by the other line, the appearance of this district is greatly in advance of that in other portions of the country. I do, therefore, trust that with a good price for lambs, and with the prospect of a comparatively good and abundant crop of corn for this district, you may have a truly prosperous year, and that it may in a great measure obliterate the bitter recollections that those terrible droughts of 1868 and 1870 must up to the present time have left in your memories.



## CONTAGIOUS DISEASES IN CATTLE.

THE Privy Council have acted very promptly upon the suggestions contained in the report of the Contagious Diseases (Animals) Committee. In the *Gazette* there appeared an Order decreeing that "every local authority should cause all cattle affected with pleuro-pneumonia within their district to be slaughtered." The Committee have arrived at such a conclusion after very mature consideration of the effects of pleuro-pneumonia on the stock of the United Kingdom. Professors have been examined who have deposed that nothing short of compulsory slaughter of animals labouring under this severely infectious malady can have any effect in staying the progress of its ravages, and farmers have admitted that some such summary mode must be resorted to in order to extirpate the disease. Some of the witnesses, representing the agricultural interest, it would appear from the report, have urged before the Committee that all fat animals imported from abroad should be slaughtered at the port of landing, and that foreign store animals should be either thus slaughtered or subjected to a long quarantine. In deference to the "strong representations" made by butchers and dealers, however, the Committee could not see the efficacy of such a course of action, and they, therefore, come to the conclusion "that no change should be made in the Act so far as it relates to foreign animals; but they recommend that the Privy Council should continue to order the slaughter at the landing-place of all foreign animals imported from countries in which cattle plague exists, or from which there is reason to fear it might be introduced." If we acted strictly upon this suggestion, we should be virtually adopting the view which agriculturists have so often expressed. The real fear which farmers have is that disease (not only cattle plague, but pleuro-pneumonia and the

foot-and-mouth complaint) may be introduced with any cargo received from the Continent at any moment. On Aug. 5, for instance, a statement appeared in a Belgian newspaper, which, although unauthenticated, and given "under reserve," might have been quite well founded, nevertheless. It was to the effect that cattle plague had appeared in Germany; and under our existing system a whole cargo of cattle more or less severely affected with disease might have been landed at Deptford or Hull to disseminate the infection through the country.

On the consideration of paragraph 4, "That no change be made in the Act so far as it relates to foreign animals," Mr C. S. Read put the farmers' case in a nutshell by moving as an amendment:—"And further recommend that, should stringent measures be taken in the United Kingdom for stamping out pleuro-pneumonia, foreign cattle coming from all countries in which that fatal disease exists shall also be slaughtered at the port of landing, as the Committee are satisfied that no inspection can guard against the introduction of a disease which has so long and uncertain a period of incubation." This was lost by the small majority of one vote, after which Mr Read made another attempt to put the Committee on the right track. He moved as an amendment:—

But your Committee regard in a very different light the other class of foreign imports, viz., store stock, to supply the demands of dairymen and farmers. Evidence has been given to prove that it is a fruitful source of infection, and appears to contribute in no small degree to keep alive disease in the metropolitan dairies and in other rural districts where these animals go.

It would also seem, especially with regard to Holland, from whence these store cattle chiefly come, to be a source of supply of a very fitful and capricious nature, being governed by the question of the scarcity or otherwise of hay or winter food for the sustenance of those animals in that country.

Your Committee are of opinion that greater risk than advantage attaches to this source of supply, as such stock, instead of being purchased on landing by butchers as in the case of fat stock, and sent direct to their destination for slaughter, are exposed in pens and markets, and if infected spread that infection through the land; only remotely and indirectly can restrictions upon this class of trade affect the price of meat.

They therefore recommend that, after proper notice being given, the importation of all foreign stock, save for the purpose of slaughter, should be discontinued.

This, we are informed, was negatived by a majority of eight to six—which shews that opinion on the subject was pretty nearly balanced in the Committee.

There has been some discussion as to the fatality of sheep pox. If the subject was not settled before the Central Chamber of Agriculture, the Committee have finally put the controversy at rest on undoubted authority. They recommend that sheep affected with pox should be slaughtered, and also that horses labouring under glanders should be destroyed. The Committee evidently despair of ever effecting the extinction of foot-

and-mouth disease in this country, unless the ultra-stringent measures of stopping fairs and markets, and the movement of animals except by licence, be adopted. They rightly refuse to recommend the adoption of such a mode of lessening the malady, but it is somewhat surprising to note that they propose to relieve owners from the necessity of giving notice of the existence of this disease among their stock.

It is a well-known fact that the returns issued by the local authorities give very meagre and inefficient statistical information as to the prevalence of disease; but it is a question whether the Committee would not leave graziers too much their own masters—to the extent perhaps of prejudicially affecting their neighbours' stock. It is satisfactory to find that the Committee suggest that the county authorities should include the boroughs within them. This amalgamation will do away with a great deal of the conflicting action which at present characterizes these two local institutions.

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### *JUDGING AND BEING JUDGED.*

MR BEALE BROWNE'S name is one well known throughout Great Britain and Ireland, in connexion with Cotswold sheep. The merits of his flock have been spread abroad by all reporters, at national and local shows. No breeder, so far as we can remember, ever objected *in print* to Mr Beale Browne attaining the position assigned to him by the judges, although sometimes they may have thought that more honour than was due to him was accorded. We certainly never heard Mr Beale Browne say that he was farther forward than he ought to have been, nor throw insinuations out as to the capacity of the arbiters. When he was first he never for a moment thought that he did not get his proper desert; under such

circumstances, therefore, we are of opinion that it would have been better if Mr Beale Browne had abstained from publishing such criticism on the Hull Show as the following:—

Every allowance should be made for judges, but when prizes are awarded, as in some of the Cotswold classes, it is too glaring to prevent universal condemnation. So disgusted was I that I shall never shew again after this year. I have subscribed and shewn at more agricultural societies than any other man in England. I have never interfered in any way with their management, but I have ever begged them not to appoint local or interested persons to act as judges. No one objected to Mr Brown, of Marham, having prizes with his old sheep; they were large, and very fat. His first prize shearling was the best sheep I ever saw shewn, and the other two were good sheep, though I was astonished when the noblemen and



gentlemen who bought mine, and measured them with his second and third prize sheep, to find they were as large in girth, though not so old or so fat. The first prize shearling ewes were the worst I ever saw have a prize. Their heads matched, but not their carcasses, and they had no quality, and, as several said, no hind quarters. The second prize sheep were better, but deficient in quality and necks.

We remember having been at a show in the north country when the judges differed about the merits of some fat cattle, the end being that the prize went to a polled, instead of to one or other of the crosses which were contending against it. This decision occasioned great dissatisfaction to the writer as well as to those who were interested. An eminent breeder attempted to throw oil upon the troubled waters. He publicly expressed his opinion that it was too bad to blame the judges, who were "all honourable men," and men well acquainted with stock—that the decisions of judges should not be cavilled at. This same eminent breeder, who bowed down so meekly to the fiat of the fat-stock judges, was an exhibitor in another class. The writer was requested to have a look at the stock exposed in this breeder's

name. He saw them and made no remarks. The exhibitor did. He asked if it were not a shame that he should have only second place, when, in his own opinion, he was clearly entitled to the first. What could be said in reply? This, and this only, after the previous observations of the gentleman about the immaculate and skilful character of judges generally, that it was out of place for him to quarrel with the affixing of the cards.

Will Mr Beale Browne accept the moral? Will he allow younger breeders to gain prizes without accusing the men appointed by the Society of the Royal to give the awards, after due consideration no doubt, of having acted towards him unfaithfully? He may have got to the top of the ladder in this breed of sheep, but having attained the utmost round he need not scorn the "base degrees from which he did ascend." Second thoughts, it is said, are best; and if Mr Browne reconsiders his observation that he "shall never shew again after this year," we think that in the interest of agriculturists, if not for himself, his name will again appear in the catalogue of the Royal Agricultural Society.

## Farm Architecture.

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### CONSTRUCTION OF BARNS.

AT a recent meeting of the Orleans County Farmers' Club, the above subject was discussed. The question was opened by the Hon. A. Hutchinson, who remarked that previous to 1830, the general size of barns was 30 by 40 feet. Since then, in order to shelter stock, a large increase in barn-room has been needed; an animal well sheltered is half kept. With his present facilities, if he had to build a new barn, he would make it of stone. He would arrange it so as to be convenient to use machinery for unloading hay and grain. He favoured a plain building, though every one could consult his own taste. Barn buildings should be far enough from the house to avoid all effluvia from the manure; and stables and pens should be managed and bedded so as not to taint the air with unpleasant odours. He would build a basement to a barn, but not a cellar; it should be well ventilated, and have large doors, so that he could drive in and out. It was, he thought, a great mistake to build small barns. A barn 30 by 40 feet, with posts 18 feet long, contains 21,600 cubic feet besides the roof. The superficial area to be covered with siding is 2520 feet. A barn 35 by 45 feet contains 28,350 cubic feet, and the superficial area is 2880 feet. An addition of 5 feet to the size each way adds 25 per cent. to the cubic contents, making the two sizes compare as 3 to 4; and this only requires an addition of 360 feet to the siding. A barn 45 by 60 feet contains 48,600 cubic feet, and has a superficial area to be covered with siding of 3780 feet. Or, by adding to a common 30-by-40 barn, 20 feet to the length and 15 to the width, and 1240 feet of siding,

the cubic contents are much more than doubled. There is also an advantage in building nearly square. A barn 30 by 60, and one 45 by 45, require an equal amount of siding; but the square one will have a storage capacity of 4050 cubic feet more than the other. He also spoke in favour of a nearly round building, as containing the largest amount of room in proportion to the superficial area or outside covering.

In adding to barn room, it was said, where other things are equal, the cost of an addition to a 30-by-40 barn that will double the storage bears no comparison to the cost of building a new barn of the same size. Mr Hutchinson had a barn 35 by 45 feet, to which he added 25 feet on one side, changing the width to the length, and making a barn 45 by 60. He then put on a hip-roof, which, with post 18 feet high, made a very large amount of storage. Under this is a good basement, which also makes a large amount of room. The estimated cost of this improvement, including the carpentry and mason work, and new siding for three sides, did not exceed £45. He preferred hemlock for siding; indeed, he had some that had been on fifty-seven years which he thought would last the century out. If siding is to be planed and painted, he would use pine; but if not painted, hemlock is a good deal cheaper than pine. He spoke very favourably of the basement as being very comfortable for stock, and as affording facilities for making a large amount of manure; he estimated the increase in the value of the manure, from being made and kept under shelter, as from 25 to 50 per cent. He had no trouble from this manure, as his



stock are well bedded, and they keep all well trampled down; and there was no fermentation to give off any effluvia. It had been objected to basements that the effluvia from the manure will injure hay and other fodder above; but he had no difficulty of this kind, as he can open doors and secure a draught all through; it was his opinion that no other ventilators were needed. He had no trouble in driving into the barn, as the embankment is started well back; nor was there in backing out, as the edges were rounded off, so that a wagon could be cramped either way, and turned around when it got out a little. His barn floor was 60 feet long, and held three wagons loaded with hay or grain at a time, which was a great convenience in case of a sudden storm or other emergency.

Mr Arnold Gregory endorsed the foregoing remarks in regard to basements. Mr Gregory remarked that he had made one under a barn 30 by 94 feet, and also under a small barn adjoining that one. The greatest difficulty was in getting at it; his improvement cost over £60. He went on to say that he had his basements full of stock every winter, and made a large amount of manure, which loses nothing by leaching or washing, and being well trampled down, is ready to draw at any time. His horses and colts, except one span which were kept shod for driving, and other stock except cows, run loose in open boxes

and pens, but had abundance of bedding, so they always kept clean. A large barn with a large basement makes plenty of room to save everything that will do for bedding; and he had used a large amount of clover chaff in this way. His cows stood on a floor, well bedded, and the manure is cleaned away every day. He finds the basement an excellent place to fatten sheep. It was also much less trouble to take care of stock; in cold, bad weather, it was cold work to do "chores" at his other barn, but in the basement it is always comfortable. The manure made in a basement was worth nearly double that made in a yard. It was not difficult to drive into the barn, but backing out is quite inconvenient. He intended to make a driveway on the other side, so that he could drive through. He had another large barn, but still not barn-room enough. He preferred building new to making additions to old barns. He also had a good horse-barn, but he thought the basement a better place for horses. He further stated that he had a root-cellar in the driveway to the barn over the basement, arranged so that loads can be tipped right into the bins from above. He had a few lightning rods, put on one barn before it came into his hands, but did not think much of them. He had running water in the barn-yard, which he found to be a great advantage.

## Agricultural Implements and Machines.

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### LOCOMOTIVE ENGINES ON COMMON ROADS.

FOR several years past there has been a growing dissatisfaction on the part of those interested in the transit of locomotives over ordinary roads with the provisions of the Acts of Parliament, by which the working of these engines is at present governed. Those Acts were passed in 1861 and 1865 respectively, and it has long been felt that their conditions, however reasonable they may have appeared at one time, practically prohibited that benefit being derived from the road locomotive which it was capable of affording. The former Act, among other provisions, limits the width of locomotives to 7 feet, except in special cases, and their weight to 12 tons; defines the weight on each pair of wheels; and regulates the speed, which is not to exceed 10 miles an hour in the country, nor 5 miles in towns. The Act of 1865 more clearly defines the working regulations; limits the speed to 4 miles an hour in the country, and to 2 miles an hour in towns; extends the width of the engine to 9 feet; and increases its weight to 14 tons. These restrictive conditions, coupled with the fact that the use of traction and self-moving engines is greatly on the increase, led to the appointment of a Select Committee to inquire into the whole subject, and to report what limitations and restrictions they consider it would be reasonable to impose. The Committee went to work in earnest, examining witnesses representing various interests, including the manufacturers of agriculture and other self-moving engines, and taking the evidence of persons opposed to the use of steam on common roads. The objections were based upon notions of danger said

to be caused to horses and carriages, and damage alleged to be done to roads and bridges by road locomotives. It was doubtless matter of considerable difficulty to the Committee to reconcile the statements of the witnesses, representing as they did conflicting interests. They have, however, succeeded in doing so, and in producing a report, which was recently laid on the table of the House of Commons, and contains recommendations, which, if adopted by the Government, cannot fail, *Engineering* thinks, to prove satisfactory, both to those who desire the unrestricted admission of the locomotive on common roads, and those who object to its presence there *in toto*.

The question of danger to horses is very quickly disposed of by the fact that, although locomotive engines, including steam rollers, are working by day as well as by night in the streets of many large towns, but few complaints have arisen in consequence of their use. The inconvenience might be slightly greater in some rural districts where the horses were less accustomed to these adjuncts of civilization; but it is well known, and freely admitted, that horses soon become used to the sight and sound of engines. With regard to the question of damage, the evidence appears to have been very conflicting, some witnesses asserting that the roads were cut up and destroyed, whilst others averred that a beneficial consolidation accrued to the roads over which engines passed. There is no doubt truth in both statements, but there may have been a wide difference in the condition of the roads referred to, and between the breadth of the engine



wheels, as well as in other respects. In some cases the damage has been attributed to the engines ; in others to the wagons drawn by them. But with wagons built specially for steam tractions little or no harm can possibly be done to well-made roads. The present state of the law respecting the passage of road locomotives over bridges is both anomalous and unsatisfactory, and the Committee do not hesitate to say so. In cases where a notice appears upon a bridge stating that it is insufficient to carry weights beyond the ordinary traffic of the district, consent of the parties interested in the structure has to be obtained before a locomotive can be allowed to cross it. If the owners of the bridge do not consider it sufficiently strong to carry the engine, then the Secretary of State has to be appealed to for a certificate as to the sufficiency or insufficiency of the bridge for the weight proposed to be taken over it. The Committee suggest that any notice placed upon a bridge affecting locomotives should state the maximum weight which it is estimated the bridge will safely bear. They further recommend that a more direct and inexpensive mode of appeal should be provided.

The anomalous character of some of the clauses of the Acts is well illustrated in that of 1861, Section 7 of which renders the owners of locomotives liable for all damage directly or indirectly caused by the breaking down of any bridge by the passage of a locomotive. If, however, an accident should arise through the transport of a heavy weight not drawn by steam, no such liability appears to attach to the carriers. This anomaly was very strikingly referred to by Mr Aveling in his evidence before the Committee. He observed that if he sent a boiler, weighing 15 tons, and drawn by 15 horses, over the county bridge, and the boiler broke through the bridge, he would have nothing to pay. If, however, he sent the same boiler over the bridge with an engine weighing 8 tons, and the boiler broke through the bridge, he would have to bear the whole of the expenses. This manifest

absurdity is dealt with by the Committee in their recommendations on the subject. In these, as regards roads and bridges, the Committee take into consideration the probability that, whatever improvements may be made in lightening traction engines by the use of smaller boilers and high-pressure steam, steam-ploughing engines will not, for some time to come, be made much lighter, the weight of the engine being necessary to resist the side strain of the ploughing tackle. The Act of 1865 practically limits the weight of road locomotives to 14 tons, but the Committee recommend that the owner of a road locomotive shall not be liable for damage done to a bridge by it, provided it does not weigh more than 20 tons, and provided that no notice is affixed to the bridge. If a notice is posted up, then the owner is to be liable for damage if the weight of his engine is greater than that prescribed by the notice. If the engine exceeds 20 tons, then the owner is to be liable, whether there is a notice or not. He is also to be liable for any damage done to a public road by an engine weighing more than 20 tons.

Another point dealt with by the Committee is the power of making orders as to the hours during which locomotives may travel within the local districts. The Metropolitan Board of Works permit the use of locomotives for road purposes at all hours, but by another rule they prohibit locomotives for other purposes from working, except at certain inconvenient hours, within 10 miles of Charing Cross. As the Act of Parliament restricts the speed to 2 miles an hour in towns, and as the Metropolitan Board of Works only allows engines to pass through their district, 20 miles in diameter, between 10 p.m. and 6 a.m., it follows that in some cases either the Act must be contravened, or the locomotive is stopped on the road by the police when six o'clock arrives, and the luckless owner is fined. The Committee therefore recommend that, except in the cases of engines working upon narrow roads, the restricting the hours of working should not be conferred upon

local authorities. With regard to the case of engines working upon narrow roads already referred to, and where inconvenience may arise from the meeting of traffic, as the engine cannot be taken so near the edge of the road as an equally bulky vehicle drawn by horses, the Committee recommend that the use of engines should be somewhat more restricted. They suggest the prohibition of all engine traffic by some responsible local authority during certain hours upon roads less than 20 feet in width.

The revision of the general regulations of the traffic is advised by the Committee; for instance, they suggest the discontinuance of the red flag as being practically useless, and apt to frighten horses; they would, however, retain the use of three attendants, one of whom should precede the engine, and assist

horses past it, but that no precise station should be assigned to him. The restrictions as to blowing off steam, the Committee consider should be confined to cases of wilful neglect. The power of stoppage by the public is also recommended to be so far restricted that it may not be used vexatiously. For instance, it is not to be tolerated that a groom should order an engine to stop and start over and over again that he might train his horse in the centre of a town.

With regard to speeds, the Committee recommend all road locomotive traffic to be divided into two classes, light and heavy, and that the speed for heavy traffic should be three miles an hour in towns, and four miles in the country. For light traffic, the speed suggested is that at which ordinary vehicles drawn by horses travel.

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### *THE THRASHING MACHINE BILL.*

THE following is the text of the Thrashing Machine Bill presented to the House of Commons, and which was thrown out in the Lords.

This Act may be cited as "The Thrashing Machine Act, 1873."

The drum of every thrashing machine intended to be driven by any other power than manual labour shall be provided with a fence sufficient to prevent accidents when such machine is in use. If any person shall, after the commencement of this Act, make, sell, or expose for sale any thrashing machine intended to be driven by power as aforesaid, not provided with a fence in conformity with this section, he shall be liable to a penalty not exceeding £10. If any thrashing machine intended to be driven by power as aforesaid is not provided with a fence in conformity with this section, the owner of such machine shall be liable to a penalty not exceeding £10.

The person in charge of every thrashing machine driven by power as aforesaid shall, whilst it is in use, take care that the fence pro-

vided for the drum is duly fixed, and is not removed during such time as the machine is in motion. If any person in charge of a thrashing machine fails to act in conformity with this section, he shall be liable to a penalty not exceeding £5. If any person other than the person in charge for the time being of any such machine shall remove the fence from such machine while it is in motion, he shall be liable to a penalty not exceeding £2.

If any person suffers any bodily injury in consequence of the owner of a thrashing machine having made default in providing the same with a fence sufficient to prevent accidents when such machine is in use after notice in writing has been given to him by an inspector or sub-inspector of factories that such machine was deemed to be dangerous by reason of such his default as aforesaid, the owner of such machine shall be liable to a penalty not exceeding £50, and the whole or any part of such penalty may be applied for the benefit of the injured person or otherwise as the justices before whom the case is heard may determine, and so much of such penalty as



is not applied as aforesaid shall be applied as other penalties under this Act are applied.

The owner of every portable thrashing machine shall, after the commencement of this Act, cause to be and continually keep painted, in one or more straight line or lines upon some conspicuous part of the right or off side of his thrashing machine, his Christian and surname, and the place of his abode at full length, in legible letters not less than 1 inch in height.

If the owner of any portable thrashing machine makes default in complying with the provisions of this section in relation to the painting of his name and place of abode and containing the same as painted, he shall be liable to a penalty not exceeding £2, for every day during which such default continues.

Any inspector or sub-inspector of factories or

constable may at any time enter any premises on which he has reasonable cause to believe that a thrashing machine is being used, and may examine any thrashing machine so far as may be necessary to ascertain whether the provisions of this Act have been complied with.

Any person who knowingly refuses to admit any such inspector, sub-inspector, or constable, or obstruct any such officer in so entering or examining as aforesaid, shall for each offence be liable to a penalty not exceeding £10.

This Act shall come into operation on the 31st day of March 1874.

Notwithstanding anything in this Act contained any action may be brought and damages may be recovered in respect of any injury caused by a thrashing machine in the same manner as if this Act had not passed.

## The Farm.

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### IMPORT AND EXPORT OF AGRICULTURAL COMMODITIES.

**A**LTHOUGH we imported upwards of 1000 less cattle during the past July than we received from abroad in the corresponding month of last year, it is noticeable that since the beginning of the year we have been in receipt of a much greater supply of foreign meat than was the case in the first seven months of 1872. Last July the number of oxen and bulls sent by the foreign grazier into this country was 12,368, according to the Board of Trade Returns which have just been issued, and last year in the same month the total was no less than 13,953. In the seven months, on the contrary, the figures shew a different state of matters, our receipt of oxen and bulls since January of the present year being tabled as 70,933, while the statistics of the similar period of the preceding year indicate that we imported but 51,425 of the same description of live stock. The cost of the animals received has increased in an equal ratio, the money spent during the last seven months on foreign supplies being £1,434,684; and last year £971,189. The number of cows has slightly decreased on the month, and in the longer term the increase is but a slight one being only 182. The numbers are, last month 4472, and in the same month of last year, 5007. Since January the number of cows imported during the present year was up to the end of July, 18,687; last year, 18,505. On both terms the number of calves received this year has exceeded those of last year. The information as to our foreign stock supply elicited from the Board of Trade Returns for July is, that during the past seven months we have put about £2,000,000 sterling

—the exact figures being £1,922,939—into the pockets of the foreign raisers of meat for the purposes of our home consumption. This is a surprising fact, when we take into consideration the facilities which our excellent pasture land offers for the raising of stock, and again the risks we run in introducing exotic beeves into our farms. It would be much better for the safety of our own herds if the large sum we spend in meat were expended upon corn instead, and we should much prefer to see the money annually disbursed go into the pockets of our own farmers. There is an augmentation in the number of calves received in July last, compared with the number received in the same month last year, the figures this year being 7047 against 5866 in July 1872. For the seven months, this year's numbers shew an increase of 3721 over the total of the corresponding term of last year. The respective totals are, this year, 27,718; the first seven months of 1872, 23,997. Sheep and lambs did not come so plentifully to hand this July as compared with last, but the comparative numbers of the longer terms shew that there has been a slightly increased importation during the past seven months of the present year compared with last. From January to the end of July last year 489,501 sheep and lambs were imported; this year in the like term we received 524,395. If we take the number of foreign swine imported as a criterion, it would appear that our agricultural exhibitions do not contribute very materially to the extension of pig breeding. Compared with the same month last year we received in July last nearly 10,000 more



porkers from abroad—the numbers being, this year 13,324, and last year 3462. In the past seven months we imported no less than 30,776 swine, exceeding by 23,651 the number sent to us in the first seven months of 1872. Since January last therefore we have been compelled to disburse £3,099,739 for live stock alone. Although our receipts of porkers has so vastly increased this year, bacon seems to be in great demand also. During the month just passed we received 127,612 cwt. of bacon, as against 125,805 in the same month of last year. On the seven months the figures this year are 1,886,710 cwt. to compare with 1,344,217 cwt. in 1872. The money value of the bacon imported since January is stated in the Returns at £3,750,160, a sum exceeding by more than a million sterling the price we paid for the same commodity in the first seven months of last year.

Beef salted, or fresh and slightly salted, has cost us £363,232 since the first month of the year. Last year the sum spent for the same articles of food was £281,707. Of hams the supply both in the month and seven months has been greater compared with the like terms of last year. 137,192 cwt. of this commodity has cost us £380,670 since the opening of the present year, and last year 101,703 cwt. were imported at an expense of £255,993. “Unenumerated meat” has cost us less since January this year as compared with the corresponding period of last year, which, to a certain extent, confirms the news as to the declension of meat-preserving in Australia. It is said that the trade is not an over profitable one to the “manufacturer,” and it is also a noticeable fact that Antipodean preserved meat does not find much favour among us. This is much to be regretted, as the meat is excellent and the supply unlimited. There is a slight increase in the amount of money we have paid for pork during the past seven months as against the sum expended last year, the figures being this year £396,106, and last year £349,418.

The supply of poultry and game has been a very liberal one this year—far in excess of the receipts of last or the preceding year. The money spent on this commodity is given in the Returns as £112,587 during the past seven months to compare with £82,105 in 1872.

The foreign supply of eggs instead of getting “small by degrees and beautifully less,” as we should very much like to see it, seems to become greater almost every month of the year. 558,581 “great hundreds” of eggs is a large number to receive in one month from abroad, when we take into account that the money spent might easily remain in England. For the last seven months we have been obliged to pay £1,617,792 for foreign eggs, which is a considerable increase on the amount disbursed in the similar period of last year. Butter has also materially increased in quantity, both on the month and longer term. Since January we have gone to an outlay of £3,849,953 for butter, and the sum spent last year upon it was £3,463,503. Cheese has cost us £1,724,226 since the beginning of the year; last year this dairy commodity was received to the amount of £1,145,154.

Coming to bread-stuffs, we have to note a vast increment in the quantity of wheat we imported during the past seven months. The increased facilities of communication which are springing up in the United States are at the same time opening up vast tracts of country whence cheap and excellent corn can be sent to us. This year our principal source of supply has been America. Since January the amount we have spent on foreign corn has been no less than £15,113,696, to compare with £11,810,760 in the corresponding term of 1872. Barley has greatly decreased; oats shew a slight increase; peas are smaller in bulk, and beans have slightly fallen off.

The following tables shew the quantities of grain, and the countries from whence they were received, for the past seven

months of the present year, also the values compared with 1872 :—

QUANTITIES.		
	Seven Months ended July 31, 1872. Cwt.	Seven Months ended July 31, 1873. Cwt.
Wheat.....		
Russia.....	9,650,270	6,126,201
Denmark .....	112,994	246,984
Germany .....	1,998,577	1,265,832
France .....	229,747	1,169,103
Austrian Territories...	30,262	15,009
Turkey, Wallachia, } and Moldavia .....	647,005	251,273
Egypt.....	1,413,579	767,413
United States .....	3,706,241	9,718,815
Chili .....	882,022	912,675
British North America	310,849	1,091,011
Other Countries .....	652,553	1,937,516
Total.....	19,634,099	23,501,832

VALUE.		
Russia .....	£5,596,960	£3,811,888
Denmark .....	74,178	166,266
Germany .....	1,327,194	891,386
France .....	141,702	746,837
Austrian Territories...	17,754	10,239
Turkey, Wallachia, } and Moldavia .....	344,554	146,909
Egypt.....	707,247	411,388
United States .....	2,392,528	6,352,476
Chili .....	577,205	572,045
British North America	200,160	708,476
Other Countries .....	428,278	1,295,786
Total.....	£11,810,760	£15,113,696

QUANTITIES.		
	Seven Months ended July 31, 1872. Cwt.	Seven Months ended July 31, 1873. Cwt.
Barley.....	7,785,191	5,843,662
Oats .....	7,007,691	7,531,964
Peas .....	577,598	770,003
Beans .....	1,822,658	1,524,934
Indian Corn or } Maize.....	11,500,190	10,534,461
VALUE.		
Barley .....	£2,999,467	£2,495,213
Oats .....	2,545,011	2,982,197
Peas .....	246,814	328,381
Beans .....	727,658	629,285
Indian Corn or } Maize.....	4,164,507	3,556,640

## QUANTITIES.

	Seven Months ended July 31, 1872. Cwt.	Seven Months ended July 31, 1873. Cwt.
Wheat Meal, and Flour.		
Germany .....	555,151	413,993
France .....	287,620	1,553,364
United States .....	253,043	621,614
British North America	112,672	206,020
Other Countries .....	552,972	1,108,361
Total .....	1,761,458	3,903,352

VALUE.		
Germany .....	£511,560	£406,054
France .....	269,111	1,479,455
United States .....	198,127	547,063
British North America	97,079	180,866
Other Countries .....	552,679	1,059,572
Total .....	£1,628,556	£3,673,010

It is likely that we have now reached the end of our foreign importations of potatoes. Our own crops this year bid fair to realize a good profit to farmers, though it will take more than one season to recompense for the sad loss which occurred in 1872. To illustrate the manner in which we have been obliged to make up our deficient crop of last year, we need only state that since January last we have imported from France, Germany, Spain, and the Channel Islands, no less than 6,245,351 cwt. of potatoes, whereas last year we had need only for 1,025,648 cwt. The sum we have paid for the tubers since January was no less than £1,829,153.

As regards manurial substances, there is a decline in the quantity of bones received in July this year as compared with the same month in 1872. The quantity of that fertilizer we imported during the past seven months was only 35,863 tons as against 60,558 tons in the same term last year. Instead of decreasing, the supply of guano seems to have greatly increased during the past year. We paid £164,159 for that valuable manurial substance in July, and during the past seven months we disbursed £989,786 for it. In the first seven months of last year we could only manage to get £643,592 worth of guano. In 1871 we received during the first seven



months no less than £1,637,451 worth of that fertilizer. Nitrate of soda has likewise been more liberally imported this year than last, no less than 1,412,852 cwt. coming from abroad since January, to compare with 1,003,109 cwt. in the same period of last year. This year that ingredient has cost us £1,075,988. Oilseed-cake has slightly increased on the month, but there is a falling off in the amount received this year, so far as it has gone, compared with last. This feeding-stuff has cost £760,133 since January; last year the value was £802,865 in the same period.

Wool has increased both on the month and seven months, as will be seen from the following tables, which shew the quantity and value of the fleece imported into this country during the present and last year:—

QUANTITIES.

	Seven Months ended July 31, 1872. lb.	Seven Months ended July 31, 1873. lb.
Wool, Sheep, and Lambs.		
From Countries in Europe	19,840,885	17,183,724
„ British Possessions		
in South Africa	19,163,375	22,339,954
„ British India.....	13,024,286	12,878,520
„ Australia .....	153,582,710	162,125,961
„ Other Countries ...	22,695,512	16,353,621
Total.....	229,206,768	230,881,798

VALUE.

From Countries in Europe	£1,152,848	£970,809
„ British Possessions		
in South Africa...	1,226,304	1,519,922
„ British India.....	615,577	573,083
„ Australia .....	9,543,493	10,169,903
„ Other Countries ...	1,030,287	765,700
Total.....	£13,568,950	£13,999,417

Compared with last year our *exports* of butter and cheese shew a diminution both in quantity and value. Butter sent to foreign

countries from our home dairies, has put into our own pockets during the past seven months £148,255; the sum received last year in the same months was £168,993. Cheese has brought us in £40,899 this year, which is a decrease of more than £1500 on the amount of 1872, and less by £13,470 than the amount paid to us in the same term of 1871. Those who grudge so loudly to lose our native horses will receive some satisfaction from the statement that the exportation is gradually but surely decreasing. In the first seven months of 1871 (following the French war) we exported 4938 of our equine species, principally to our neighbours on the other side of the Channel. In the corresponding term of 1872 we only sent 1888 horses from our shores, and this year we have, up to the end of July, further reduced the number to 1320.

The following tables shew the exports of wool since January, and the money paid for it compared with last year:—

QUANTITIES.

	Seven Months ended July 31, 1872. lb.	Seven Months ended July 31, 1873. lb.
Wool, Sheep, and Lambs.		
To Germany.....	1,036,262	1,377,238
„ Belgium .....	834,719	537,047
„ France .....	495,076	557,394
„ United States.....	1,521,001	588,153
„ Other Countries.....	683,874	459,275
Total.....	4,570,932	3,519,107

VALUE.

To Germany .....	£88,169	£124,744
„ Belgium .....	72,763	46,729
„ France .....	41,696	45,965
„ United States .....	111,092	45,693
„ Other Countries .....	64,433	37,914
Total .....	£378,153	£301,504

*TOP DRESSINGS.—SIGNPOSTS AND BRIDGES.*

By J. J. MECHI.

## TOP-DRESSINGS.

GREAT mistakes are sometimes made by the use of nitrate of soda alone on poor lands as a top-dressing. It contains very few elements of manure, therefore the intensely green and improved colour of the crop is delusive, which I have observed, and this is also the opinion of Baron Liebig (see his "Modern Agriculture," letter 4, p. 53). I much prefer and always use the best Peruvian guano, mixed well with its own weight of common salt, for in this mixture you have nearly all the elements of plants, excepting potash and silica. A comparative trial in the same field will give satisfactory evidence when the crop is harvested. With nitrate of soda the growth of straw is forced, and it is often mildewed. There are cases where nitrate of soda is advantageous, such as on soils abounding in phosphate of lime and other fertile elements.

## COMMON SALT.

I have used much the last twenty-five years, and am convinced of its advantages on drained and well-farmed land, especially on light land; for where salt is used the moisture of the air will be more abundantly appropriated and retained. About five o'clock one fine summer's morning I noticed that where the salt had been sown the previous day, every grain of salt had attracted to itself the dew, and formed on the surface of the ground a wet spot about the size of a sixpence, the ground being generally very dry. On our light lands it consolidates them, and makes them especially firm and acceptable to the wheat plant, whose straw will stand firm and erect, although  $4\frac{1}{2}$  to 5 feet long. It is also unfavourable to certain weeds by this consideration. It prevents the ravages of wire-

worm. It is especially favourable to saline plants, such as mangold, whose ashes contain 50 per cent. of salt. I never sow guano, except mixed with its own weight of salt. Like everything else, it has, I am sorry to say, greatly risen in price. I observe that all crops seem to thrive well on land near salt water, especially where the land is drained. Lumps of rock salt should always be placed in mangers for horses or cattle; their instinct teaches them when to avail of it. The spring consolidation of light land, where wheat is sown, by salting and heavy cross-killing, greatly benefits the crop; very light hand hoeing should follow these operations, although frequent hoeing is scarcely required. Liebig, in his "Natural Laws of Husbandry," cap. xii., p. 335, correctly describes nitrate of soda and common salt as "chemical means for preparing the soil." Referring to the experiments, he says (p. 337):—"In both these series of experiments, the crops of corn and straw were remarkably increased by the addition of common salt; and it is scarcely necessary to repeat, that such an augmentation could not possibly have taken place unless the soil had contained a certain quantity of phosphoric acid, silicic acid, potash, &c., capable of being brought into operation, but which, without common salt, was not assimilable." Liebig also says (p. 340):—"The grass of a meadow which has been manured with common salt, is eaten by cattle with greater relish, and preferred to any other; so that even from this point of view common salt deserves attention as a manure."

## OUR SIGNPOSTS AND BRIDGES.

The former are simply disgraceful—in most cases decayed and illegible, contrary to the Act of Parliament. I have often thought



that I should be doing a public service by indicting the parish road surveyor, whose duty it is to keep such matters in proper order. I am informed that this was done by the late Mr Comyns Parker, to the great advantage of the localities through which he passed or "waded," for in the latter case arches or bridges had to be constructed. Not long ago I wished to visit a friend in the village of Chappel, but found, after arrival by rail, that the flood was out rushing across the road more than knee-deep, because the old rickety wooden bridge across the River Colne was not sufficiently large; and I could not reach my destination for want of £3

worth of planking, which years ago had decayed, and had not been replaced; and this, too, in the 19th century, in one of the main roads to the railway! Of course, almost every bridge has a newly painted warning that "no traction engine is to venture across this bridge." Even the new Kelvedon Bridge on the main road between London and Colchester is thus notified. A very strong feeling of indignation is arising against this petty, paltry attempt at rate-saving in a rich agricultural county like Essex, with its million of farmed acres, and 360,000 inhabitants. The practice of throwing docks and large stones on to the public road should be forbidden.

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### *THE STOKE PARK IRRIGATION SYSTEM.*

THE *Times* describes "a novel system of management applied to pasture land" which is in operation on land owned by Mr John Coleman, at Stoke Park. This embraces, we are told, an increased production of grass; and secondly, an improved and more economical method of consumption. We reserve our comments on this novel system of pasturing until next month.

Mr Coleman has devoted some 40 acres of his park to a trial of the new irrigation with artificial showers, invented by Mr Isaac Brown, of the British River Irrigation Company, India Buildings, Edinburgh. A 12-horse power steam-engine, working a Tangye force pump, draws water from the ornamental lake, and waters the whole area with jets of "artificial rain" squirted from small perforations in lead pipes, which are laid down in parallel lines 16 yards apart. With a pressure of 60 lb. to 70 lb. per square inch, or a head of 120 or more feet, the engine maintains a shower upon a plot of about  $1\frac{1}{2}$  acre in extent, applying 10 tons of water in fifteen minutes. And plot after plot is taken in rotation until the whole is thus irrigated, the work proceeding for the most part in the

night, so as to avoid any ill effect upon the herbage from watering under a hot sun. Six acres, parted off for the present experiment, are watered every night. Mr Coleman, requiring hay, has hitherto used the system chiefly for promoting the growth of hay crops, and thus the natural herbage has been injured for grazing purposes. Nevertheless, the appearance of the full green aftermath, from which an enormous bulk of hay 3 feet high was taken in June, is surprising, when compared with the adjacent ground now lying withered and bare on its dry, loamy soil. The six-acres portion was dressed with 5 cwt. per acre of the patentee's artificial manure, and then watered; the grass, where only a fortnight old, being now a fine deep bullock pasture, and here is being conducted a remarkably novel experiment—designed to secure in sheep-grazing the economy found in the well-known Jersey system of tethering cows. Two hundred fatting sheep (tegs of the Leicester and Cheviot cross) are inclosed in a fold which reaches across the whole breadth of the field—namely, 300 yards, but only 7 yards space between the two rows of hurdles, so

that the area occupied by the sheep at one time is less than half an acre. Instead of confining the sheep to this plot until it is quite exhausted, and then shifting to another plot of high grass, as in ordinary folding, the new plan is to remove both rows of hurdles one yard forward at least four times per day. Thus the animals have always access to a strip of strong, fresh, succulent herbage; they never foul their food; they walk and lie only upon what they have already cropped short; they leave not a blade of grass, or a stem shooting up into seed as a "bent," and yet they have ample room for their natural ranging up and down in search of new mouthfuls of special grasses. To ease the labour that would otherwise attach to this rational process, Mr Brown has constructed a hurdle in the form of a *chevaux de frise*, consisting of a horizontal central bar, with spels or bars at right angles, in cross section like the multiplication sign X, each side of the square being 3 feet across, and the hurdle 9 feet long. Made of Norway fir, these military-looking fences are light and yet very durable, particularly if creosoted wood be used; and the process of shifting by rolling each hurdle one-fourth of a rotation, or on to its next face, is so easy and expeditious that the shepherd on Saturday turned by himself 106 hurdles, being a length of 300 yards in seven minutes. Ordinarily, the labour would occupy about 20 minutes four times a day; and would therefore go into the time of the necessary attendant upon the fold. The sheep graze by putting their heads between the upright bars or slats of the hurdles, and after ten days of the folding are evidently doing exceedingly well. Indeed, Lord Chesham, who is pre-eminent as a breeder and feeder of Shropshires, expressed his high approval of these hurdles as the very things most suitable for grazing sheep. The fold had advanced in ten days about 40 yards, leaving the grass uncropped and untrodden in the portion behind to grow up rapidly under the stimulus of the diurnal showers, in readiness for a repeated visit of the flock. The earliest eaten

grass is already a fair sheep bite; and it is plain that it will be ready for re-folding long before the expiration of the 14 more days which are required to complete the first course. The present stock amounts to thirty-three fatting sheep per acre, and the land, under the daily showers, will not only carry them on, but would feed a considerably larger number. The height and luxuriance of the grass in the rear of the fold, and now only ten days old, shews this, but it is affirmed that, with "growing weather" always at command by means of the steam pump, a growth of  $\frac{1}{2}$  inch to 1 inch per day can be obtained, and that, with a proper attention to the watering, the six acres in Stoke Park are able to feed double the present number of sheep, or 66 per acre. This would be done with two folds, each traversing over half the ground every fortnight, and always having at the end of that time a fresh crop of grass of that age again to begin upon. At this rate the 6 acres would carry about 400 sheep for six months, from April to October; and the summer stocking for the whole 40 acres under the system would be no less than a flock of 2600 tegs, shearlings, or other fatting sheep. Without the watering, manuring, and hurdling it would probably be overdone with 260.

The importance of the novel system here described is obvious. For, if we are to fatten sheep (and the present 200 are improving fast upon the succulent grass, without a taste of cake or corn) upon a tenth part of the area of grass land hitherto required, the supply of mutton may become wonderfully increased. And there is this merit in the plan, that while requiring a concentration of large numbers of fatting sheep upon a small area, it leaves nine times as much grass land to be added to the area used for breeding flocks. The system, instead of demanding an increased supply of store sheep which can never be produced, provides a surplus of pasture upon which the additional stock of lambs may be raised. As to cost, the estimate put before us reckons the rent at 30s.



per acre; the manual labour, 5s. per acre; tools, 10s. per acre; artificial manure, 120s. per acre; interest and maintenance upon permanent plant, machinery, and engine-power, 40s. per acre; interest and maintenance upon hurdles, 20s. per acre—total, £11, 5s. per acre, for the season. The return is, the keep of sixty-six sheep for twenty-eight weeks, which, at 6d. per head per week, would amount to 14s. per sheep, or £46, 4s. per acre. Mr Coleman's 200 head, only half as thick on the land, ought to be realizing £23 per acre, or just double the total outlay, with the exception, of course, of the interest upon the cost price of the animals. Looked at another way, the sheep may reasonably be expected to make 1 lb. weight of mutton per

head every week for twenty-eight weeks; and this, at say 8d. per lb., will be 18s. 8d. per head for the season, giving at Mr Coleman's rate of stocking £30, or at the rate calculated upon in the future £60 per acre.

The working and results up to this time certainly warrant extended trial of the shower-watering and hurdling system by some man of business anxious to determine how much can be done with it. The meat consumers of the kingdom will wish the enterprize every success. Probably there are watercourses sufficient for the purpose in a majority of the pasture valleys of Britain, and in drier localities rainfall may be stored as often proposed by hydraulic engineers.

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### *HUTCHINSON'S SOCKBURN SHORTHORNS.*

THE following is the conclusion of the article upon the above herd, which appeared last month, taken from "Thornton's Circular:"—

All the animals mentioned by Mr John Hutchinson, as Sockburn shorthorns, were descendants of the old yellow cow, with the exception of Jessy, a twin by Wellington, dam from the stock of the late Mr Hill of Blackwell, bought at the sale of the late Mr Robert Colling, in calf with Jessica by Hampton, whose portrait in the second volume of the Herd Book, represents a very good cow. Of the milking properties of the Sockburn tribe, the following particulars are given. It is stated, generally, that Nos. 3 and 4 were great milkers. Of young Sall the youngest produce of Sockburn Sall, No. 1, this account appears:—"When I first became possessed of my brother's cows I had no more land than was necessary to keep two cows for my family use, and this addition of stock, as soon as young Sall calved, gave more milk than we had any occasion for,

or than my dairy-maid could well carry home. This happened early in May 1806. Intending to rear her calf (afterwards the cow Crescent), and seeing how promising she was for milking, I went into the market and bought two young calves purposely for Sall to feed. They were accordingly turned to her, night and morning, and after they had fully satisfied themselves her own calf was set to take what was left. In this way I proceeded for twelve weeks, buying a young calf as I sold a fat one; at the end of which time I had bought and fed six calves, which cost me £5, 10s., and which I sold for £18; clearly paying me for her milk £12, 10s. for twelve weeks, besides rearing her own calf, which was then weaned, turned off altogether, and able to provide for itself; it having for two months before had liberty to go at large in the pasture, which the veal calves had not. Though Crescent got the smallest portion of each meal, she certainly got the richest; and to this mode of rearing her (so unusual in this country for heifer calves) do I attribute

that very superior touch which this cow possessed over any cow I almost ever saw."

Besides this specific statement, Mr John Hutchinson writes:—"Several of my cows have been known to give fifteen, and some sixteen quarts of milk at a meal upon the flush of their pasture." To Palmflower, by Windsor, out of young Sall (the milky mother aforementioned), this note is appended in the list—"Sold to Lord Althorpe, a sixteen-quart cow." Of Beauty (another daughter of young Sall's) this statement occurs—"She was the only cow I ever lost by death; she was in perfect health two hours before; she had no visible complaint on her, and was in high condition. She had just been a month calven, and had given a large meal; had had her fill of water, and been foddered at seven o'clock in the evening; at a little before nine, however, my servant went to pay his last visit, before he retired to bed, he found her as dead as a stone, swollen to an excessive degree, notwithstanding she had completely emptied her crib." Mr Hutchinson also writes:—"The in-and-in system of breeding, I have in my stock been careful to avoid, as far as possible, fully convinced of its fatal effects, as destructive to constitutional vigour, prolific qualities, and general health; on the contrary I may observe (and do it with truth) all and every heifer I have bred, in seventeen years, have been regular breeders, except the Masham heifer and two others, which were twins." Of the Masham heifer he elsewhere writes:—"She was fed, and at four years old weighed 4 qr. 78 stone, tallow 12 stone." Whilst, of another one of two freemartins, he says:—"She was sold fat, on the day she became three years old, for £38; resold for £40, her four quarters weighed 70 stone of 14 lb." This latter was by Windsor, out of Old Roany; the Masham heifer was out of Old Roany's daughter, Alpha, by Herod (a son of another of Old Roany's daughters, the before-named Stranger). Of the bulls the following weights and particulars are given:—Equinox (out of Old Roany) at five years old, weighed 4 qr. 112 stone; tallow, 11 stone.

Herod (out of Stranger), falling unruly, was slaughtered, on the instant, in July, in fifth season; weighed 100 stone and upward. Rufus (ditto) fed four months, weighed, fifth season, 122 stone; tallow, 12 stone. Rufus is said to have served, in his fourth season, 150 cows; Orlando (another son of Stranger) is said to have served four seasons at Grassy Nook, and to have left numerous progeny, not less than 500, principally females. His twin brother, Furioso, by Mason's son of Blaize, "has been for forty years the property of Sir Charles Morgan, and has been shewn every Christmas at the Tregear Exhibition of Stock, and will appear again this Christmas, and there continue to serve another season." Of Sir Leoline a portrait (certainly not flattering) appeared in the *Farmer's Magazine* for 1829. He received at sixteen months old an honorary premium of £30, April 1821, from the Board of Agriculture, for his superior merit. "He has now 100 cows upon his list, 1822." He was by Major Rudd, Leopold, out of Stranger's granddaughter, Ruby, by Petrarch (her dam by the allowance of Major). It may be worth while to mention as an instance of the varying opinions of contemporary breeders, that, in the red ink MS. addition to the first volume of the Herd Book, the following criticism is given on Sir Leoline:—"lirey handle. Must be from the black tribe." Whilst another nameless critic went to a newspaper office in London and stated:—"Sir Leoline is no more a shorthorn bull than I am." So writes John Hutchinson.

Now for constitution! "I have in all lost five calves, one in the shoote and four in the quarter evil. The complaint in the former instance was brought on by a sudden change of water from the pond to that drawn cold from the pump. Three others were affected by the same cause at the same period (when rising one year old), but recovered. The quarter evil I have since escaped by frequent bleedings." Altogether it would seem that there was more reason than is generally ex-



ertained by most people for this little advertisement of his herd.

"Ye noblemen and gentlemen, engaged in this pursuit—

Believe me when I tell you, it is common fame's repute,

That if your stock grows weedy, should they dwindle or decline,

You are strongly recommended to take a cross from mine;

Then hasten to be satisfied, to handle and to look

At my group of horned beauties which embellish Grassy Nook."

The Society for the Encouragement of Agriculture in the county of Durham, of which the appendix treats, dates from 1783, holding two exhibitions yearly, at Durham at St Cuthbert's Fair, in March, for bulls and stallions; and at Darlington, in September, for tups and cows. Bulls and cows, rewarded with a prize, were to be kept in the county for two years afterwards, and the same with tups. The first winner, for a bull, was Mr Christopher Hill, of Blackwell (on the merits of this breeder's herd Mr John Hutchinson insists strongly), and the first winner for cows was Charles Colling, of Skerningham (father of the Charles and Robert). The first prize tup was also the property of Robert Colling, of Barmpton, and was hired that autumn by Mr George Coates, butcher, of Houghton. This year the judges were Thomas Hutchinson, Robert Walton, Staindrop; Arthur Mowbray, Sherburn; John Mason, Brancepeth; and Matthew Foster, of Wilton-Gilbert. Ten members were chosen for judges, out of which the acting five were drafted by ballot. "The Society was conducted many years," writes John Hutchinson, "in this regular and equitable manner, but mark the sequel! In 1794 all the members were to act as judges. (This he calls 'the first step to revolution.') The Collings had for fourteen years struggled for these premiums with the whole country, but it was not until after the death of Mr Thomas Hutchinson, sen., and the removal of Mr Thomas Hutchinson, jun., from Sockburn,

and Mr Hill's departure to Sunderland (when he was appointed Collector of Customs, and when his famous cattle had been sold and distributed between the Collings), that they can be said to have established their superiority as breeders."

At first the highest and lowest breeders contended for the prizes in honest unsophisticated rivalry. Every man thought his own stock as good as his neighbour's. The title of pure blood was then unknown in the land, as applicable to horned cattle. That grand discovery was left for Mr John Bailey to make in his "General View of the Agriculture of the county of Durham." "It is now become the most undefinable and visionary term in the English language." Mr Bailey wrote in the interest of "these pure blood breeders," to keep alive an imaginary notion of individual superiority in blood and origin, to which they had not the smallest pretension, but Mr Bailey's account soon enabled them to tread all other stocks in the county underfoot. The Blackwell and all other contemporary stocks upon the Tees, to whom they owed everything, were for a time forgotten as though they had never been; and to my feeble pen it has fallen to do them that justice to which they are so fully entitled. —(p. 37).

"After 1808 the funds of the Society were improperly applied, I mean in bestowing the greatest part of the money on oxen fed in the most absurd and extravagant manner, some of them having actually been allowed their fill of new milk till they were turned two years old. The good old rules of rewarding only bulls and breeding cows (and such cattle as obtained prizes to be retained in the county two years afterwards or the prizes returned) were abandoned. These infringements and innovations soon caused dissatisfaction among the candidates. Competition in the exhibition of cows and bulls began to slacken, or rested only with the managers themselves—a set of rising farmers who, in the days of war and high prices, could well afford to waste both the food of

animals and animal food. As breeders, however, the Messrs Colling shewed much foresight and sound policy. Who but themselves had ever thought of feeding any animals from calfhood up to seven years of age, in so extravagant a manner as the "white heifer" was fed, and made a monster of? The scheme was a deep one, and Mr Bailey aided with all his might, and it succeeded to a miracle. She was shewn all over the kingdom like a wild beast, and raised the character of their breed in the opinion of the world to the highest pitch of excellence. The pure blood then bubbled out like a fountain and overspread the whole land. All other stocks were counted as nought, and the great cry was Favourite! Favourite! Favourite! to the end of countless generations. —(p. 45).

In spite of this little ebullition of discontent with the lion's share of public notice which the Ketton and Barmpton herds had gained for themselves, Mr John Hutchinson is generally in a pleasant mood; full of his subject, and that important part of his subject himself. He gives it as the opinion of the district that Robert Colling had a Kyloe bull grazing in his pasture one whole summer with his shorthorn cows. "And any person of discernment can easily believe this who ever made a comparison between the last of the Barmpton bulls, and any of Mr Charles. Wellington and Barmpton were surely the neatest, the softest, and the shortest-legged of his bulls (as was Moss Rose of his cows), and had more Highland hair—like all their descendants—than any I have seen of the Kettons. I mention particularly the two-year-old heifers of the last Barmpton sale, a strong instance of which I can shew in my own stock, in the cow Tulip." This was a daughter of a daughter of a daughter of the cow Stranger (of which so much has been said), and calved, like her dam and granddam, when in Major Rudd's possession. Mr Hutchinson, in his song catalogue, thus describes her:—It must be premised Lancaster,

sire of Tulip, was a son of R. Colling's Moss Rose.

"The Roses in Tulip are fairly combined—

The red and white blending, a roan you will find;  
Her head shews the Kyloe, and so do her eyes,  
But where will you find her great-grandmother  
size?"

This story about the Kyloe was distinctly contradicted by Mr R. Colling; and probably arose from the neat character, admittedly belonging to the bull in use at Barmpton, and the report was spread by persons unfamiliar with improved cattle. Beside this story, Mr Hutchinson repeats another about the pretensions of Mr Maynard's famous cow, sold to Mr C. Colling, to be called "a pure shorthorn. Can a cow with horns near  $1\frac{1}{2}$  yard long be called so? I know she had such." On the pure breeding of Hubback, Mr Hutchinson is specially critical. "The mother of Hubback always went in the lanes after she came to Hurworth. Who, I ask, can pretend to say whose bull was the happy sire? *Dic mihi Magnus Apollo?* The using of Hubback was a lucky hit of Mr C. Colling—a random shaft picked up and parted from at random—who himself did not know the value of the bull, or would he have parted with him after scarcely two years use for £30, without keeping one of his begetting?"

There are several other curious matters incidentally mentioned in the random remarks, which Mr Hutchinson calls his Supplemental Essay. He states that Mr Timothy Parker, an eminent butcher in Sunderland, knew all the stocks upon Teeswater sixty years ago, and recollected well "that the Blackwell stock of the late Mr Hill was by far the most eminent in the North, and, he believes, the best in the kingdom." He states that Mr Hill, at that period (about 1760), "sold two three-year old heifers for £50 each to a Mr Pelham, of Lincolnshire, a price till then unknown to the breeders of those days." He states that "Mr Hill's father was the first who ever gave £10 for a five-year-old ox." He says Major Rudd had just sold three



ows for £500, "a price never likely to be approached again." Mr Hutchinson, also, gives several letters on the breeding of Hubback; in one of which Major Rudd writes: "That Hubback's sire had an intermixture of Alderney or Norman blood." That Sir James Pennington's steward repeatedly assured him "Sir James said his herd was a cross between the old shorthorns and the Alderney." Mr Hutchinson (his own opinion) has, "With respect to the origin of the Peninsular herd generally, my observation leads me to believe it was a mixture of the Dutch, the native white breed preserved at Chillingham, and the Kyloe." But he ends, "How absurd the attempt to establish anything as proof or fact upon such scanty contradictory records as these."

In this, we fancy, most readers will concur; and, whilst thinking that Mr John

Hutchinson, writing in 1822, did but make himself the mouthpiece of what he himself has called "Common Fame's repute," they will feel kindly to a man who has, as a rule, "done his spiriting so gently." To be sure, he breaks out into rhyme on as little provocation as Madge Wildfire herself; and David Deans would have sorely taken him to task for giving way to "fule sangs;" yet we wish he had told us more; and if we do not entirely agree with his own opinion,

To you, by breeding friends, at once,  
My book, I fearless send;  
For you I write, and you'll pronounce  
Applause from end to end.

we are quite sure we may say "we have gone further and fared worse," except it be in that part of his writings which, to borrow a phrase of Hawthorne's, "looks very much like poetry, especially at a distance of a few yards."

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### SOME REMARKS ON CATTLE REARING.

THE following seasonable notes are from the pen of the Rev. George Porter, Rector of St Leonards:—The same remark as to large-ended animals applies to bullocks as well as to horses. Large-ended animals are always unsightly, and never thrive kindly. The body of a bullock or sheep should resemble a common builder's brick, with the edges and ends rounded off. The twist of a beast possessing this form will be low, and the udder of a cow be below the straight line which should extend along the upper part of the belly. When the form resembles that of a herring, instead of that which I have described, the udder must run up close under the tail, and animals of this shape never produce fine stock, and never fatten readily when it may become necessary to prepare them for the butcher. In the selection of cows I am a great believer in the importance of the position of the horns. When animals

have bad food and slight shelter during the earlier stages of their growth, they almost invariably produce straight horns, or, as the provincials term it, "cock horns," instead of wide-branching horns. Nor in such badly nurtured beasts do we notice the rich creamy colour which may be observed in animals that are well cared for. The skin, too, of the animal possessing the badly developed horns is usually tight or hide-bound, whereas in animals properly cared for and well bred we almost invariably notice a soft velvety touch as we handle them. The most economical plan of rearing calves is to take them from the cow when they are only three or four days old. Of course, if the cow has a tendency to milk fever, or any lumps in the udder, it may be necessary to keep the calf for a week or ten days with its mother in order that the bumping which the mother receives from the head of the calf may restore

the udder to its normal state of softness. But calves that remain more than a few days with the mother are always more difficult to rear on skim milk and artificial food than those which are removed at an early period. The most successful animals that I have reared have been fed with skim milk thickened with the following mixture—1 bushel of wheat ground down with 1 peck of linseed. The miller must be cautioned to grind this mixture carefully, otherwise the linseed will run through. The quantity aforesaid is enough to rear one calf. The patent foods recommended for calves, and containing highly seasoned condiments, have a great tendency to check the growth of the animal. Indeed, I should consider them dear at a gift. The milk should be given not more than blood warm, and oatmeal may with advantage be given to promising animals as a change of diet. The most common disease of calves arises from scouring, and it will be found that this malady, in nine cases out of ten, is produced by a wet bed. It is, therefore, very important to give clean litter. To check looseness of the bowels I recommend a change of stall, and for an antidote nothing more than a fresh egg, which, if forced down the throat, shell and all, will generally cure the complaint; if not, give a second egg on the following day.

If you are anything of a judge of stock, you will find it much better never to breed, but to buy cows with calves by their sides, and adopt the forcing system, for then your animal will not only yield milk, but lay on flesh for the butcher, to whom you can sell instead of keeping the cows dry for three months previous to calving. In Surrey and Middlesex it is now a common practice to milk the cows one night and knock them down for the butcher the next morning. These animals have frequent change of food, which is very essential for the dairy. They are not let out for more than one hour a day. The allowance of food consists of 1 bushel of grains and about 6 or 8 lb. of artificial food, consisting of locust beans, cotton cake, oats,

and beans, purchased according to the state of the market. The cake usually employed is American produce, and the service of the steam-engine is called into requisition for bruising and grinding the food, which is then mixed with the grains. The tendency of the grains to affect the taste of the milk is corrected in winter by a few mangold wurtzel and in summer by grass or trifolium incarnatum. Moreover, it is a rule never to give the grains within an hour or so previous to the milking. There is, however, one drawback to this forcing system, and that is, that the animals seem to have a greater tendency to develop any epidemic which may exist in the district, and moreover from continual purchase of fresh stock there must be more danger of introducing foot-and-mouth and other diseases. This may, however, in some degree be guarded against by keeping lately purchased stock in quarantine for a few weeks before they are drifted into the yard, and I have known many farmers who had animals threatened with complaints kill them rather than run the risk of letting the disease come to a crisis. Here I would remark that the custom which prevails in the north of protecting animals by fold-yards must be an economical one, as animals exposed to wet and cold must require more food than those whose caloric is husbanded; and with a greater amount of freedom in fold-yards compared with stall, the animal has an opportunity of cleansing himself from dust by rubbing against posts, and of exhibiting his charity towards his neighbour by licking those parts of his friend's body which his friend himself is unable to reach. Fold-yards can easily be constructed at the end or sides of a building with lean-to roofs. The enclosure may be formed of refuse timber 7 feet high, or of stone walls, according to the taste and purse of the proprietor. It is a good plan to erect three fold-yards and to separate the yearlings, the two-year-olds, and the older bullocks. Each day the feeding troughs of the fat cattle should be emptied, and the residue of their meals



passed on to the store cattle. The same rule holds good of emptying the racks daily, that expensive system of wasting hay in racks instead of cutting it into chaff is still employed. Much labour may be economized in the yards if the sheds are well spouted, and the bottom of the fold-yard rendered impervious to moisture by tar or paving. No stronger cement exists than tar that has been well dusted with quicklime and sand. The rain that falls directly from the heavens does not wash out the fertilizing properties of the manure if plenty of fresh litter be put on daily. The loppings of the hedges, if they are cut twice a year, will form a valuable bed

for cattle, or sawdust in addition to the manure. It will not be necessary to clean out the fold-yards more than once a year if fresh litter is frequently added, and there is less waste in this plan of fold-yards, where the manure of various animals may be well mixed together by frequently changing the stock of the yard, then we find in those homesteads where horse manure is placed by itself, and the heap becomes "fire-fanged," and the ammonia is driven off by the heat. In the summer time, when the horned cattle are in the pastures, the horses can be soiled with green food in the yards, and thus immense amount of waste is saved.

### *WELSH MOUNTAIN SHEEP.*

**M**R MORGAN EVANS contributes an article on the above breed to the *Field*. He says:—

It is quite unnecessary to prove the very ancient origin of the Welsh mountain sheep. Their claim to being an indigenous breed in our island is undisputed. With black cattle, they formed at one time the principal stock of the Celtic race in the mountainous districts of Wales. At one time they must have been the only sheep both on hill and plain, on heather-clad mountain and sunny vale, from Anglesea to the Bristol Channel, from the Severn to Cardigan Bay. As the more fertile lowlands became cultivated, and free and undisturbed communication took place between Wales and England, the small ancient breed in these places became crossed with the larger kinds introduced from the adjoining counties, or have been entirely supplanted by them, and at last driven before advanced agriculture into the poor hilly soil and mountain ranges of the Principality where they still linger. Leicesters, Cotswolds, or Downs are now to be found on all fertile and well cultivated farms in the country. On medium and

poor soils in exposed places a cross of these with the Welsh mountain sheep is commonly seen; whilst in the realms of gorse and heather, stretches of barren common, and the cottier tenements on the hillside, the ancient breed still holds sway, living on scanty food, rearing hardy lambs, and producing the sweetest mutton known to the palate of the epicurean Englishman.

Although there is a slight difference in character in the mountain sheep of separate districts, they were doubtless originally the same breed, and have the same common origin. Attempts have been made to divide them into two distinct classes, but the variations appear to be those only natural to accidental selection or to the effect of soil and climate.

The Welsh mountain sheep are principally whitefaced, but some have rusty-brown faces, some speckled, and others grey. The males are horned, the females generally hornless. Sometimes the ewes have very short horns, and occasionally have these appendages large—equal in size to those of the rams. The poll is generally clean, but it is not uncom-

mon to find rams with a tuft on the forehead, and also very woolly on the scrotum. These latter characteristics are considered by some breeders valuable indications of vigour and hardihood. As no great care, however, is taken in breeding these sheep, specimens of all the above variations in horn, colour of face, and amount of wool on the forehead may be found on the same mountain range, and even in the same flock. The head is small, and carried well up; the neck long, and the poll high. The tail is long, the rump high, and the shoulders low; the chest is narrow, the girth small, and the ribs flat. They have all the character of a wild, active breed of animals, suited to scanty herbage on rocky slopes and precipitous hillsides. The average weight of the store ewes is about 7 lb. per quarter. They feed slowly, and the wethers, when three years old and fat, weigh from 9 lb. to 10 lb. per quarter. The ewes are not prolific, producing generally but a single lamb on mountain land, where one lamb is enough, and two would be too many to nurse properly. Both improved keep and crossing with other sheep are found to increase the number of twins.

The average clip of wool is about 2 lb. The quality is usually fine, but in some districts it is coarse and mixed with long hairs about the neck and along the back of the animal. It is well known that wool is greatly affected by soil and climate. Continued exposure to cold and to the most severe winds tends to change wool into hair. The difference in quality of wool appears to be due to position and locality in which the sheep have been bred for generations rather than to any separate origin, for in all other features the Welsh mountain sheep is alike in all localities. Even in the same county, Cardigan, as mentioned by Youatt, the wool in the northern parts differs from that of the more southern parts of the county. The wool on the Pembrokeshire range of mountains adjoining is particularly fine, and in much demand by the local weavers, who formerly were the only purchasers of wool.

The manufacture of flannels and woollen cloths was until recently an important branch of the industry of this country. At that time all the woollen goods used were what is called "home made." The ordinary rural farmer walked and slept in woollen goods grown on his own sheep; the coat on his back, the blanket on his bed, were the natural produce of the farm. The spinning-wheel could be distinctly heard humming once a year, for weeks in his house preparing blankets for his bed, dresses for his wife, or petticoats for his daughters.

The Welsh mountain sheep are good nurses, and rear their lambs well. They are often sold from the western counties of Wales to go into some of the English counties for breeding fat lambs, and they succeed well when crossed with larger breeds of sheep. On exposed farms of poor soil in Wales they are frequently used for this purpose, or a cross of these is kept, the mountain ewes forming the original basis of this stock. The sheep are crossed with Downs or Leicesters, or with any large mongrel strain, and again recrossed with the mountain sheep if necessary, all depending on the class of sheep the farm is best suited to carry. The real mountain sheep are sold as wethers at three years old. The cross-bred come to earlier maturity, and the produce of these are sold as lambs in the May, June, or July fairs. In making the first cross with the mountain ewe, a cross-bred small ram a little bigger than themselves is used, always selecting males with the small heads and hardy constitutions. The rams might be too large and of too good a quality, the consequence being much difficulty in lambing, and tender lambs unable to stand the wind, rain, and cold. A friend of mine, one of whose farms is on high land, writes and says:—"I have used the cross-bred mountain ewes, the largest I could get, which when fat would make 11 lb. to 15 lb. per quarter. I used them for years, and shall go back to them again, I believe, this winter for lambing. My sheep are too good for my poorest land. These little ewes were by far



the best nurses I ever had, and four-fifths of them brought twins by small-headed South-down rams, the lambs weighing from 8 lb. to 11 lb. per quarter at the fair on July 10. I exclude almost every horned ewe from the flock. Many of the diminutive little ewes had the lambs by their sides much heavier and bigger than themselves."

In the winter time, just before lambing commences, the farmers on the mountain side bring the sheep down into their small enclosures, and, in addition to the grass the sheep consume, they are given small quantities of hay or oats. The oats are always given in sheaf; the mountain sheep would not know what to make of clean corn, and would not look at it. All the lambs kept in stock as ewes or wethers are shorn in July or August. When they are weaned the mothers are milkers for a month or two, and butter is made of the milk, or it is mixed with skim milk to make cheese. Milking sheep, however, is becoming less common every day, and where I remember the practice being almost universal twenty years ago, it is hardly known at the present time. The young Welsh farmer, economical and of small means as he usually is, finds in mountain ewes a good basis for his future flock. The ewes are bought cheaply in the summer and autumn months, after their lambs have been weaned or sold. By continued crossing with larger animals, he at last establishes a paying if not a fashionable class of sheep—ewes and wethers that are thrifty in seeking food, and which when killed die well. The improved strain is almost invariably commenced and continued by the purchase of ram lambs. Aged rams seldom or never change hands. Lamb rams in Wales, just as yearling bulls in Switzerland, are supposed to get more vigorous offspring than older sires; and twins are

said to follow the younger rams more frequently than those of a riper age.

When brought into the enclosures, these sheep are found difficult to keep within bounds. Fences such as are usually found, low stone walls, turf banks, or hawthorn and hazel hedges, are as nought to these wild creatures. A purchase of ewes at a fair to-day spreads in the direction of the four winds to-morrow, unless extreme precaution be taken, and the secret of their whereabouts is sometimes found to be the house-tops of neighbouring cottages. To prevent their marauding proclivities—for no professional shepherds are kept—they are bound with fetters—"lonkers," as they are called in some parts—made of woven rush or hempen fillets. These extend from the fore to the hind leg, leaving the extremity of each limb from 12 to 18 inches apart. Sometimes an occasional sheep—the ringleader of the flock—has a fetter on each side; and if putting them on in the usual way be not found sufficient to stay the wanderings of the wicked one, both fetters are crossed, from the fore foot on one side to the hind foot on the opposite side—and it is surprising to see how they go about even under these difficulties.

Attempts have been made to supersede these sheep in their native mountain homes by Cheviots and other breeds, but the change has not been found to answer. No sheep suit the mountain tops of the country so well as the indigenous breed, and the most profitable on the lower ranges of poor soil and waste lands are a cross with the native stock. Welsh mountain sheep are likely to hold pre-eminent sway in their strongholds at high altitudes for many generations to come, and as long as the geological structure and the climatic influences of the country remain unchanged.

*AMONG THE ALLOTMENTS*

**K**ELVEDON is rather a kind of "Sleepy Hollow." It is a drowsy little farming village, notwithstanding that it is within a few miles of the residence of one who has done so much to instruct the rising generation of farmers—Mr Mechi, about whose farm some account will be found at page 167. Yet, with all its dozing, there are residents among the 1600 inhabitants, of which the hamlet is composed, who have had some experience of the outer world, whose ideas rise above the dull level of their daily toil. One of these we met in our journey to Tiptree. This son of the soil, who had been born and bred in the place where we met him, had his own theories about land. They were somewhat of a republican nature. He thought that there was too much monopoly in land—that that monopoly ought to be broken. He could not well give a reason why, but this was his opinion. There was too much ground-game about the neighbourhood, and he was not by any means sure that winged game was not also very destructive to crops. He had seen pheasants do a great deal of harm to stooks, and there were too many of them preserved in the quarter. There were, he said, a great many men belonging to the Union, and farmers did not care much about those who joined it. At the same time, they did not use any tyranny towards those who were members of the new association, but they were chary of taking on new hands who belonged to the Union.

The twilight had set in, and "the shades of eve were falling fast" when we passed through the village with this rural Hampden to see the effects of spade-husbandry on allotment plots. The late proprietor of this part of the county of Essex, Lord Weston, was, it appears from our informant, a good and a shrewd man. He took much interest in having the land properly cultivated. He did

not desire to be hard upon the tenants, but at the same time he did not wish to have his land scourged. He was not averse to leases, but before granting them he liked to see with his own eyes whether a lease would tend to the improvement of the ground. This landlord, anxious to encourage the deserving poor of the parish, granted numerous allotments of 20 rods each at the rate of 3d. per rod. The "deserving poor," it seems, since his day, have not always been so well looked after; others than hardworking agricultural labourers have managed to secure a considerable number of the allotments. Tradesmen, for whom the ground was not originally intended, have not a few of the portions. The allotments are now-a-days too often obtained by favour.

And so on our guide talks until we reach the ground. One thing strikes us very favourably. Although quite open to all comers, there does not appear to be any speculation. Not a potato has been lifted, except by its rightful owner, not a bean disturbed. The crops, principally potatoes, are wonderfully good, and not a trace of disease is manifest in the haulms. The yield will be very profitable this year. Something like £5 or £6 will be made out of the work in after hours. Some of the plots, we notice, are not so well cultivated as others. We remark upon the difference, and are informed that these are in the occupation of old men who cannot work so vigorously as they were wont to do; but, without exception, there is more produce on the land than on the generality of farms about here, some of which are rather slovenly cultivated. Thistles and other obnoxious weeds are too common. Taking the cost of these small farms (if we may be permitted to call them so) by the acre, we find that they amount to about £2. Adjoining these are lands rented at £3; and in not a few parts



of Great Britain we have seen land of a less fertile character rented at £5. The allotment system works better at Kelvedon than we have observed it to do in Lancashire and in Scotland, *i.e.*—the land yields evidence of having been better tilled than in other places

where the allotment system has existed, but if it is to be generally practised, as some desire, we should like to have it given specially to those who have been brought up upon the land, so as to encourage and foster a spirit of industry.

### AN AGRICULTURAL EXHIBITION IN AUSTRALIA.

THEY seem “to do things better” in New South Wales, if we may judge from the following account of an agricultural show given by the Sydney correspondent of the *Times*, in a letter dated May 17:—

The Agricultural Society of New South Wales has held its fifth annual meeting or exhibition, given its dinner and ball in royal style, and passed through three weeks of glory, such as does not usually fall to the lot of agricultural societies. Nothing could be more pleasant and satisfactory. The opening was a grand occasion. Their Excellencies Sir Hercules Robinson and Mr Du Cane, with their suites, were in official costume. Lady Robinson and Mrs Du Cane were also of the party, and a brilliant circle assembled to meet them, composed of the members of Parliament, the agents of foreign governments, the Senate of the University, the heads of the legal, medical, religious, and commercial professions, and the learned societies. Sir Hercules, being himself the President, could not read an address to himself, so the address was read by a former president, Sir William Macarthur, who has done much to give success to the Agricultural Society. The Governor, in reply, expatiated a little on the benefits to be derived from exhibitions in general, and from this inter-colonial exhibition in particular, and then followed a salute of twenty or twenty-one guns, and the singing of an ode composed by Dr Badham, and set to music by Mr Charles Lascelles. Associated with the elements of

a usual agricultural display were objects illustrating raw materials and the industries of all sorts to which they gave rise, and a collection of works of fine art. The articles exhibited were thus divided into agricultural and non-agricultural—the latter being for the most part in the pavilion erected three years since, at a cost of £20,000, for the Society by the Corporation, the Society paying a rent of £1000 per annum. A large share of the space within the building was occupied by Victoria, Queensland, Western Australia, South Australia, Tasmania, New Caledonia, and Ceylon. California would have been present with a contribution, but for the hitch in communication. With the exception of the sheep, the live stock were splendid. I never saw better shorthorns, and Herefords, and Devons in England—and my intimacy with English shows is considerable—and never better horses. The arrangements, too, were admirable. The prizes given were very low indeed. Four pounds is the highest in cattle, and no second money prize. But, in spite of this, the space at command is crowded, and the exhibitors feed their own stock. The stalls are fitted, so that the expense to the Society in this respect is only that of re-erection. It is expected that money prizes will be shortly discontinued, and the labours of the judges extend to the placing of one-half or two-thirds of the animals in each class. The stock show continues one week, and finishes up with a sale, and when I say that the horned stock sold privately and by public

auktion during the week realized the sum of £17,000, it will be apparent that the breeders have good reasons for frequenting the Society's grounds. Of horses there were 119, among which was Mr A. A. Dangar's Arab stallion Farhan, and of cattle there were 399, four from Mr R. Morton's herd, of Victoria, one of which (a cow) fetched £1150, and another (a bull) £700. The common price here for a well-bred bull calf is from £100 to £200. Owing to the Scab Act, the sheep show is not representative of the fine wool sheep of the colony. There was a fair show of Lincolns, Leicesters, and Downs, which breeds are gaining ground among those who try mixed farming. During the first week the attendances by day and night were large. From 10,000 to 20,000

passed through the gates some days. Instrumental and vocal entertainments being added to the evening displays, the numbers then were generally large. As a whole, the affair was highly creditable, and it is likely to do much towards promoting a good feeling among the colonies, for the visitors have retired from the competition loaded with honours. The results of this exhibition will enable the Agricultural Society to stimulate production in certain ways, for which the means hitherto have been wanting. It will not be out of place here to state that the kind and wise encouragement extended by Lord Belmore during his term of office to this institution is by no means forgotten by its members. The members at the present time number about 1200, and are steadily increasing.

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### THE NEW GAME BILL.

THE following is the text of the Bill to amend the law relating to wild animals in Scotland, brought and prepared by Mr Barclay, Mr Fordyce, and Mr Trevelyan:—

Whereas under the protection of various statutes the numbers of certain species of wild animals have in many places increased to an extent presenting unnecessary temptation to breaches of the law, and otherwise hurtful to the public welfare.

And whereas the preservation of wild animals discourages the cultivation of land for the production of food.

And whereas it is unjust to restrict tenants of arable lands in protecting their crops from wild animals.

Be it therefore enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords spiritual and temporal and Commons in this present Parliament assembled, and by the authority of the same as follows:—

1. This Act may be cited as the Wild Animals (Scotland) Act, 1873.

2. This Act shall not extend to England or Ireland.

3. In this Act, "arable farm" means any hold-

ing of cultivated land, or any holding of land whereof part is cultivated, and part uncultivated, provided the annual value of the cultivated part is greater than that of the uncultivated:

"Arable lands" includes any uncultivated land forming part of an arable farm, and within fifty yards of any cultivated land on such arable farm: "Sheriff" includes Sheriff-Substitute.

4. The Acts and parts of Acts specified in the schedule to this Act, so far as they relate to Scotland, are hereby repealed.

#### PROTECTION OF TENANTS.

5. The tenant of any arable farm and every person permitted by him shall have power to pursue, take, or kill any wild animals on the arable lands in his occupation, and any promise or undertaking made before or after the passing of this Act by such tenant to his landlord, or to any other person, not to exercise or to restrict himself in the exercise of such powers as are hereby conferred shall be null and void.

Provided that nothing herein contained shall affect the right heretofore enjoyed by landlords of entering and killing wild ani-



mals on the lands occupied by their tenants and of authorizing other persons to enter and kill wild animals on such lands.

6. The tenant of any arable farm, and every person permitted by him who pursues, takes, or kills any wild animals under the provisions of this Act shall be held to be included among the exemptions enumerated in section 5 of the statute, 23 and 24 Vic., chap. 90.

7. Any question arising as to whether a holding is an "arable farm," as defined by this Act, shall be determined by the assessor for the county in which the holding is, on reference to him by either of the parties interested, and for such determination the assessor shall be entitled to a reasonable fee.

#### TRESPASS IN SEARCH OF WILD ANIMALS.

8. Any person committing trespass by entering, or being on any land with any gun, fire-arms, net, snare, or the like instrument, or any dog or ferret, in search or pursuit of any wild animals without the permission, in case of arable lands, of the landlord or tenant of such land, and in the case of any other land, of the landlord of such land, shall for the first offence forfeit a sum not exceeding ten shillings, including costs, together with a sum equal to the value of any wild animals taken or killed, or found upon such trespasser; and for a second or subsequent offence shall forfeit a sum not exceeding five pounds, including costs, together with a sum equal to the value of any wild animals taken or killed by, or found upon such trespasser, and in default of payment of such sum not exceeding five pounds, and of the value of any wild animals so taken, killed, or found, such trespasser may be imprisoned for any period not exceeding thirty days.

9. When any person is found trespassing as aforesaid, the landlord or tenant of such land, or any one authorized by either of them, may require the person so found forthwith to quit the land, and also to tell his Christian name, surname, and place of abode, and if such person wilfully continues or returns upon such land, or refuses to tell his real name or place of abode, or gives such a general description of his place of abode as shall be illusory for the purpose of

discovery, the person so requiring of any one by his order or in his aid may apprehend such person and convey him, or cause him to be conveyed, as soon as conveniently may be, before any one of Her Majesty's justices of the peace, and such person shall forfeit a sum not exceeding 10s., including costs; but no person so apprehended shall be detained upon any pretence whatever for a longer period than twelve hours from the time of his apprehension, until he is brought before the justice of the peace.

10. Any person committing a trespass under this Act, who assaults any person acting in the execution of the powers given by this Act, for the apprehension of trespassers, shall forfeit a sum not exceeding £5, or may be imprisoned, with or without hard labour, for a period not exceeding three months.

#### JURISDICTION AND PROCEDURE.

11. When the penalty or forfeiture for any offence imposed by this Act does not exceed 10s., including any sum for the value of any wild animals taken or killed, such offence may be inquired into and determined by any one or more of Her Majesty's justices of the peace for the county where the offence is committed, or where the offender is found. But in all other cases under this Act the sheriff of the county where any offence is committed, or where the offender is found, shall inquire into and determine such offence. All proceedings under this Act for the recovery of any penalties or forfeitures shall be conducted according to the provisions of the Summary Procedure Act, 1864, except in so far as these provisions differ from the provisions of this Act.

12. No proceedings shall be commenced against any person who has committed an offence against this Act after three months from the time when such offence was committed.

13. All penalties or forfeitures imposed by any justice of the peace or sheriff under the provisions of this Act shall be paid to the treasurer of the county where the offender is tried.

In the schedule appended no less than forty Acts are enumerated, which it is proposed to repeal.

*CHEMISTRY AND AGRICULTURE*

**A**T a late meeting of the Whitby Chamber, a lecture on "The Chemical Relations between the Soil and the Plant," was delivered by Mr John A. Bower, F.C.S. Dr Taylerson occupied the chair.

The lecturer commenced by saying that he had great pleasure in bringing this subject before the Chamber, not only on account of his own fondness for it, but because he felt more and more the importance of a knowledge of chemistry to practical agriculturists, and was sure that the more the laws of chemistry were applied in this, which became at once both a science and an art, the more would agriculture be advanced. The progress that had been made in our generation had been astonishing, but with the aid of chemistry combined with mechanics, it would be most hazardous to speculate on the extent and development which will be achieved by the farmers of our country during the next quarter of a century. As an instance of neglect and want of tillage, the lecturer contrasted the present with the past conditions of Mesopotamia, which, he said, had not only been the "cradle of the human race," but the "granary of the world, and we are told respecting it that it was not uncommon to see straw 10 feet to 12 feet high supporting a corresponding crown of golden grain." This no doubt was owing to the perfect system of irrigation that then existed, and to the care of the Chaldean farmer, who picked out the best and finest grains, and dibbled them one by one into the carefully prepared soil. It was in this way that the district which is now so barren and bare was able to support the immense populations of Babylon and Nineveh.

The question the lecturer next put was, what is the soil? By the aid of a series of geological diagrams this question was satisfactorily answered, and was shewn to be due to the action of wind, water, and frost, upon the crumbling masses, causing them to overlap, mix, and therefore blend their qualities and properties. The stratified rocks were divided into the limestone or calcareous, the sandstone or sandy; the hard clay or the clayey, the properties of each were separately discussed, and it was seen that where a thin chalk overlapped an

upper green sand we had a soil for wheat and hops; from a thin chalk a good grazing pasture, and from an overlapping clay often a good barley land was the result, while a plastic clay gave us a heavy wheat land; the rich loamy soil, however, was formed by the mixing of all three; in regard to the unstratified rocks, the granite gave us a very poor, the traps a rich, and the lavas a very fertile soil. Parts of Devon and Cornwall and the northern parts of Scotland afford good instances of the first, while Australia "Felix" gives striking instances of the latter, whose fields will be remembered long after the "gold-fields" in this district have faded from the memory of most of us. The effect of water in connexion with the formation of the rich alluvial soils which border so many of our different rivers, and fill our plains and valleys, was next discussed, and the transference of soil by the wind carrying the richer crumbling portions often to a very considerable distance.

It was next shewn that as the plant to be reared from the soil had itself to become a living organism, and in turn nourish and supply waste in a still higher form of life, it must be supplied with more than could be obtained from a mineral rock and water, and that whilst the quartz, silica, alumina, and lime could give the plant hardness and stability, it could not supply it with material for its starch, juices, and gluten. As a proof of the presence and quantity of organic matter in the soil, the lecturer mentioned that if 1000 grains of dry soil were taken and ignited in a crucible or capsule, and kept in a state of white heat for some minutes, its weight would be considerably lessened. This was owing to the dispersion of the organic matter into the air. The amount varies considerably in soils from 1 to 75 per cent., the large quantities prevailing with peaty soils. How, then, were we to increase the luxuriance of crops after the soil was exhausted of these materials? by the process of manuring or putting into the soil what our plant had extracted from it. The lecturer then remarked on the small number of elementary substances that were present in the soil, and that among the most important were



the gases oxygen, hydrogen, and nitrogen, and the solids potassium, sodium, iron, sulphur, phosphorus, and magnesium. By an interesting series of experiments, Mr Bower then illustrated some of their most striking properties, and contrasted them with those they exhibited when in a combined condition. The structure of the plant itself was then briefly gone through, which shewed that it was nourished from the air by the expanded stem called a leaf, through the pores, which in some instances numbered as many as 120,000 per square inch. The root expanded into minute fibres, some exceeding the fineness of hairs, were shewn to be actively at work extracting from the soil substances in a very dilute form, carried to it through the medium of water. The difficulty of shewing how the inorganic as well as organic material became transformed into the cellular form of the plant was next referred to, and the experiments of Messrs Emmerling and Noble on the chemical processes going on in the living plant explained, from which it appears that very dilute solutions of the salts come in contact with the acid juices produced by the plant, and that among them nitric acid appears to play a very considerable part in the formation of nitrogenous organic matter. Various reactions on solutions containing small quantities of salts were next shewn, as illustrating what minute portions could be recognized, and how easily they could be concealed from view or ordinary detection, also the small degree of solubility that many of these salts possessed, yet exactly in the condition to be taken up and utilized by the plant. Other circumstances also appeared to modify the position of abstract chemistry, which said, "Let the soil contain the necessary constituents, and any crop will grow on it;" these were explained to be the fixture of the soil, temperature, aspect, exposure to winds, and other local circumstances.

The necessity for renovating the exhausted soil was next spoken of by the lecturer urging his hearers to bear in mind that the march of the renovator was much slower than that of the exhauster; as an instance of this he referred to the yearly shifting wheat zone of North America, many parts of the land of Virginia and Carolina were for some time entirely abandoned, after

having for years yielded luxuriant crops; but on the return of the settler, who spread over it shelly lime, the droppings of his cattle, and the fermented produce of his farm-yard, he was again rewarded with the most beautiful crops of wheat. Again, Great Britain furnishes us with one of the best examples, not only of how various crops can be most advantageously raised in succession, but how by a proper system of manuring, the same crop may be raised for successive years. Another striking proof of the relation of the soil to the plant was that so many of our agricultural plants have been reared from the wild state by careful cultivation, and that of 5000 European plants 300 only will grow in peat; but let us break up this peaty soil and add lime to it, then many others will flourish on it; to a meadow add crushed bones and we get an excellent pasture; or guano, droppings, nitrate of soda, the daisy and other poor plants soon disappear.

In conclusion, Mr Bower said, "The elements which now make up this strangely beautiful fabric of muscles, nerves, and bone, have passed through many ordeals ere yet they became fashioned into material to hold a human soul. No grain of matter has been removed from this planet but in the 'soul of the great earth,' the forces which seem to bring about a succession of new forms are constantly carrying away the old. Under these forces matter passes from one condition to another, and what is now a living and breathing creature, or a delicately sweet-scented flower, has been once a portion of an amorphous mass we call 'soil,' and it will again, in progress of time, pass into that condition where no evidences of organization can be found, again perhaps to arise clothed with more exalted powers than even man enjoys. We see how a mere particle of inorganic matter becomes a living organism from the mysterious powers of light, heat, electrical and chemical force, and how the mere earth on which we tread is raised into a living, vital form. I hope, then, that I have shewn how the poorness of the one determines the feebleness of the other; again, that a true study of science should always have for its object the advance and increase of happiness of the human race."

## Our Library Table.

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*The Illustrated Book of Poultry*, Part 18. By L. Wright. London: Cassell, Petter, & Galpin.

WE recently noticed the seventeenth number of Mr Wright's excellent poultry manual, and the eighteenth part, which has been received, we gladly bring before the attention of our readers. "French Breeds of Poultry" furnishes Mr Wright with a subject which he handles with all the care and ability observable in his treatment of our native denizens of the farm-yard. The author, in noticing the large quantity of eggs raised in France, calls attention to the fact that such a result is not brought about by any extraordinary fertility in the breeds of poultry reared by our French neighbours. On the contrary, the hens are not great egg-producers. Mr Wright correctly comes to the conclusion that the immense egg and poultry crop which is produced in France is owing wholly to the system of *la petite culture* which obtains in that country. In our own country, a great quantity of poultry and eggs might be raised by labourers on their allotments or in their gardens; and we do not think that farmers themselves should despise such a profitable department of farm labour. Mr Wright observes respecting the French breeds:—"The French breeds have all one point in common—every one of them is most delicious *eating*. They, moreover, shew in a very suggestive manner what may be done by a judicious system of crossing, and subsequent selection, in the way of founding new breeds; since they are evidently built upon the Polish fowl as a foundation, obtaining from this race the juicy flesh, excellent laying properties, and absence of incubating instinct, whilst size has been added from foreign sources." After describing the various breeds—Houdans, Creve-cœurs, La Fleche, Bredas, and La Presse—the editor speaks very sensibly as to crossing. The whole French breed, he remarks, opens up two questions of some importance. "The first is, the great merits of the Polish race in respect of egg-production and quality of flesh, and the perfect possibility of grafting these upon increased size and hardiness, or, as in the case

of the Creve-cœur, of adding to the size while preserving the Polish blood nearly, if not quite, pure; the second is, the power of man, by judicious crosses, to create and fix new types of very different appearance and qualities from the same primeval ancestry. Little has been done in the way of crosses as yet by English fanciers; and the results already obtained by both French and American experimentalists in this field of enterprise are sufficient to cause some feeling of regret that the most scientific and skilful of all breeders have not yet set their hands to similar work, at least as regards the larger varieties." From the French variety, Mr Wright goes on to give a chapter respecting "American Breeds of Poultry." Here there is a wide field for discussion on the merits and demerits of the numerous races of poultry in America. Brother Jonathan proverbially "licks creation" in most things, and poultry-raising is no exception to the rule. In the first place, as Mr Wright says, the "breeds" across the Atlantic are legion; again, land is plentiful and corn is cheap—a fact attested by the trans-Atlantic farmer using grain as fuel—and accordingly the different families of poultry are reared on a magnificent scale, large enough, as Mr Wright adds, "to make an English fancier's heart burst with envy." It is a fact beyond dispute, however, that the Americans have, by their own exertions alone, improved their native breeds of poultry. They have formed themselves into societies for the encouragement and improvement of poultry breeding, and moreover they possess journals devoted entirely to the exposition of information respecting the domestic feathered tribe. Our English farmers might with advantage follow the example of their American cousins in this respect. Mr Wright deals very lucidly with this department of his work, which is beautifully brought out by the publishers, Messrs Cassell. In addition to the woodcuts illustrating the text, each part contains two plates in chromo-lithography, from engravings by Harrison Weir and other celebrated artists.



## The Old Farmer's Note Book.

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THE old farmer must confess very penitently, that he has been lazy of late. The heat does not agree well with him, and when there is "thunder in the air," as all your readers know there has been recently, it upsets him entirely. The old eyes swim too much even to read with the most approved of barnacles, let alone write. Nothing does him so much good as a bleeding at the nose. That seems to clear away the mist from his vision. Perhaps he ought not to have revealed this last fact, as some kind friend, who knows that bleeding at the nose does him good, might assist nature with his fist in turning on "the claret tap" (that is the sporting phrase, is it not?) at an inconvenient season. It is true about the good effects of the bleeding at the nose, however, in his case. If it go on too long, it can readily be stopped with the application of the barn-door key to the nape of the neck.

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I must come back to writing in the first person, now. Perhaps I may be wrong, but I have noticed, or at all events, I fancied that I had done so, as my Note Book tells me, that old men, like me, do not like to say anything without the personal pronoun being often introduced. It would be almost unnatural, I think, although these young fellows who have profited so much by our conversation, who have learned so much by our practice, are apt, I know, to think that we are rather reckless in the use of them. Wait till they become old, and grey, and suffering from rheumatics as I do (I am glad to say this warm weather has eased my pain) and they will be glad to find relief in speaking about their doings in former times. Old men, I think, are something like old horses. The latter cannot help shewing to those who look at them in the pastures, after they have been pensioned off, that they had once been as good or better than the young things which are capering about carelessly beside them.

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But I am afraid I am actually getting too egotistical for an old man. Even old men will be laughing at me and whispering to themselves.

What an old fool he is, to be sure. They do not say that to my face though. I have been thinking over and over again about these Game-laws, and have expressed my opinion about them, as your readers know. I think I mentioned in one of my notes that I did not think any legislation would arise this session out of the Select Committee inquiry, and that there was little chance of any satisfactory solution taking place next year. If I did not say so, I meant to ; and this is precisely the same opinion I entertain after reading the report adopted by the Committee and the draft reports of individual members. My old friend, Mr M'Combie, I see, wants the "whole hog or none." I think he is unwise in this, but he knows best, and the damages done by ground game in the county which he represents is no doubt very great, much more annoying than in any part of my country.

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Speaking about Mr M'Combie, I notice that he spoke very sensibly at a meeting of the Alford Agricultural Association the other day, about private slaughter-houses in London. I think you agree with me, Mr Editor, that their abolition, which is contemplated next year, would be very detrimental to breeders and feeders of cattle, as well as to the public, who, in hot weather, if private slaughter-houses were done away with, would not be able to procure good meat at so cheap a rate. I fully endorse Mr M'Combie's views, that if these places were done away with, the prices of fat stock shewn would be materially affected. Prime Scots would not then be in such demand. If the buyers had to send the crack Scotch animals that they purchased at high prices to the public slaughter-houses to be killed, they would not give so much for them, as there might be some doubt in the minds of certain people of getting the proper beef back, which would not and could not exist, when the champion animals were slaughtered in the buyers' own houses.

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I have been running perhaps a little too much

away from my Note Book this journey, but in this hot weather, what some writers call "the ephemeral literature of the day," somehow or other, appears to be the most inviting of any. I must make up for this in my next communication by doing more of the solid "heavy-father" style, as theatrical people would say, that is, be less discursive and discussional and more practical.

As an earnest that I mean something practical at next time of writing, I give to-day a description with cuts of what I considered at the time a very good arrangement for milking, especially where those restive and disagreeable creatures—kicking cows—are in the dairy. The milk-pail holder consists of a ring of heavy hoop-iron made large enough to receive the pail and hold it about one-third of the distance below the top. There is riveted on each side of



Milk-pail holder.

the hoop a curved piece of hoop-iron large enough to fit easily upon the leg of the milker just above the knee. The holder is shewn above as it is put together. When in use, it is slipped over the bottom of the pail, and enables the pail to rest upon the milker's knee, so that it need not be placed upon the floor of the cow-house, or on the ground in the field, nor be

held tightly between the knees, as is sometimes done, with very much inconvenience. By this



Holder in use.

little contrivance, the milking is made much more cleanly and agreeable, and easy for the milker.

I have no doubt farm-wives on small occupations, who are necessitated to be economical will thank me for the following receipt, which was obligingly given to me by a lady who has been very successful in cookery:—To make suet pudding without eggs—for a small family, one cup of sour milk, one-half teaspoon of soda, one cup chopped suet, one cup chopped raisins, one cup Zante currants, a pinch salt; mix up stiff, like biscuit dough; roll so as to flatten out a little; lay on a plate and steam two hours. To be eaten with sweet gravy, made as follows:—One cup sugar, one-half cup butter put in a basin; pour on a pint of boiling water; set on the stove; take a tablespoonful of flour and mix in a little water, so that it will not be lumpy, and stir it into the gravy; stir till it boils; season with nutmeg or lemon extract.

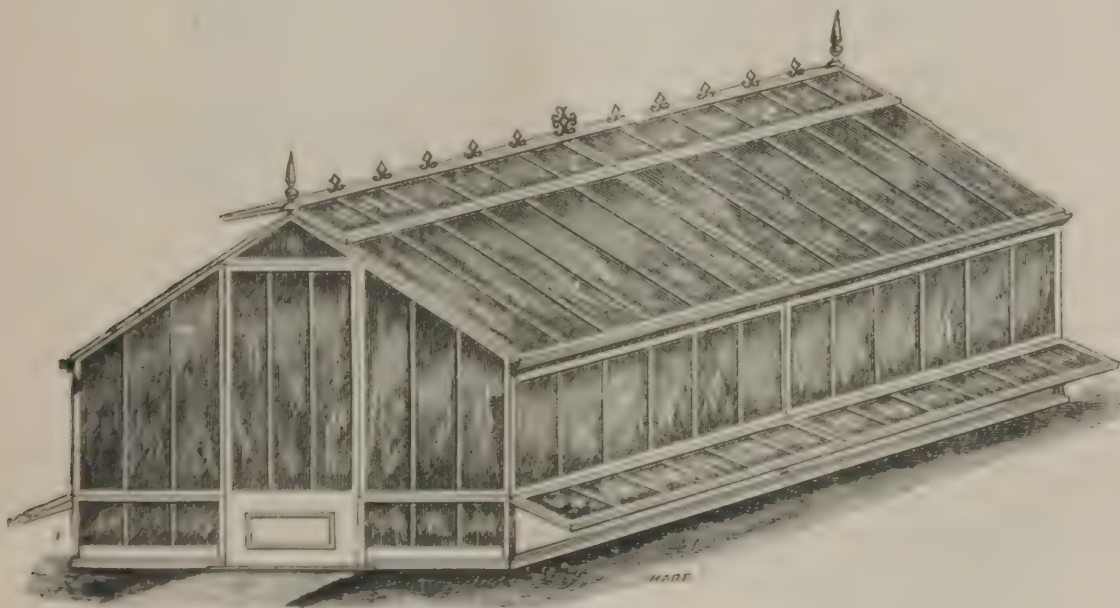


## The Garden.

### PORTABLE AMATEUR GREENHOUSE.

**A**MONG the many useful houses erected for the growth of plants we may note the "Portable Amateur Greenhouse," manufactured by Mr Edwin Lloyd, of Grantham. In order that our readers may have some notion of its appearance when constructed, we give the accompanying illustration, furnished by the makers. It is of the usual form of span-roofed houses, but differs somewhat in detail. The usual span is carried away from a brick or stone framework, this one "is fixed

not over them, as is often the case. The cold air, if it were necessary, can be heated in its passage over the pipes, and the gearing and couplings, &c., which are often an eyesore, are completely concealed. Moreover, the stability of the house is better preserved with a provision of this kind than it would be if the sashes were movable from bottom to top. The egress of super-heated air is quite as important in its way as the ingress of colder external air, and, as a glance at the



Portable Amateur Greenhouse.

in 6 feet bays to the ground-line, no brick wall being required, only concrete or brick foundation." The whole thing is made and ready for erection in 12, 18, or 24 feet lengths, and the price is very reasonable.

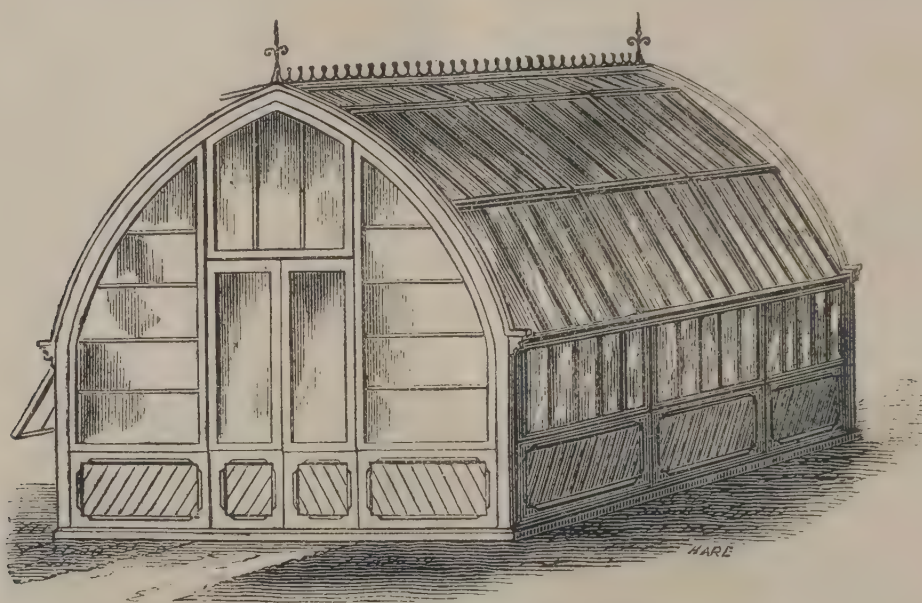
The main points of detail, in which this house differs from that offered by other makers, is in its two side sashes being made to open outward from the ground base. This arrangement admits the air to enter at the proper point, opening under the stages and

engraving will shew, provision is made for its escape by a row of lights along the roof, cut in short lengths to be more easily managed. We generally don't approve of broken roofs as being less durable than others of dissimilar kind, but where cheapness is a principal element, we have the less to say. The whole outline is good for plant cultivation and is pleasing to the eye—the two most important points to study in designing houses for plant cultivation.

*PORTABLE VILLA CONSERVATORY.*

THE Portable Villa Conservatory, like the Portable Amateur Greenhouse, is made and erected by Mr Edwin Lloyd. It has an elliptic roof, and that roof is put up without the necessity of bent glass, which adds so much to the cost of an erection. In this particular it is not unlike Ayres' patented

being required. In these days when portable articles of this kind are in demand, this will take up and can be set down again with comparative little trouble. It is plain and not offensive to the eye, and from the ample light which it can command, it must prove a more than ordinarily useful house for the growth



Portable Villa Conservatory.

house, but it has fewer breaks or joints in the roof. It is constructed like Ayres' upon wrought iron girders and with patent wood sashes fixed in 6 feet bays, no brick wall and flowering of miscellaneous plants. The ventilation is after the same principle as we have notified in our remarks on the Portable Amateur Greenhouse.



*NEW AND RARE PLANTS.*

PELARGONIUM BOUQUET DE FLORE.

**Z**ONAL Pelargoniums are highly decorative plants. They serve in the flower garden, in the greenhouse, in the conservatory, and in the window. No kind of indifferent treatment will absolutely kill them, and consequently they are grown in hundreds of thousands throughout the country. For the decoration of a villa gardener's greenhouse in summer and autumn no plant can rival them, and then there is such a variety of



*Pelargonium Bouquet de Flore.*

colours in the species to make it more pleasing and popular. We do not know a better plant for giving flowers from October to



January if it be properly managed by the gardener, and specially cultivated for that purpose. None of the sorts do to be over-

pots, with their roots well entwined together, they yield their flowers to great perfection, and if they be heavily burdened with them, a



*Primula Chinensis flore-plena atro-rosea.*

grown, because they give increased breadth of foliage without corresponding quantity and quality of flowers. In medium-sized little liquid manure by way of stimulant is the right thing. Seeing, then, that the Pelargonium Zonale and its varieties are so useful,



we are bound to welcome all that have the merit of distinctness and quality, and such an one we have portrayed here, from Mr B. S. Williams' collection, called Bouquet de Flore. It has a dense habit, its leaves are not over pleasing, and almost circular or spherical outline. The pips, or florets, are full-sized, of a white colour, with a bright cerise centre. It is a good novelty, and as such we place it before our readers.



*Ixora sanguinea.*

large, and are well put together upon the stem; the zone is very distinguishing from its decided blackness, and the pale green ground of the leaves serve to enhance the general effect. The flower stems are thrown well over the foliage, and when the umbels are fully expanded they shew a decided

PRIMULA CHINENSIS FLORE-PLENA ATRO-ROSEA.

Double Primroses are not so common as single ones, nor so popular. Of course they must always be dearer to buy, owing to the difficulty of getting them from seed, so that, instead of dozens of plants, as every amateur

can boast of, looking to the single fimbriated sorts, many will be contented with a single plant of any double variety. But the double varieties in commerce have hitherto been but slow growers, and that of itself has soured many in their cultivation. Here, however, we have a robust grower, from the Victoria collection—quite as robust as any of the fimbriated sorts, and so we are likely to

tion. As its name bears, it is of blackish crimson colour, and is most showy and marked.

IXORA SANGUINEA.

All Ixoras are splendid decorative stove plants. They delight in abundance of heat and moisture in summer and incline to hug the glass horizon to consolidate their growing shoots to prepare them for carrying their



*Viola cornuta* Sensation.

have more growers of doubles in future. This, too, is a much larger sort, looking to the individual flower, than the old double white, and is more prolific in trusses. Every flower would serve to wire for the bouquetist, and stand much longer than the single sorts, which, of itself, will be a great recommenda-

noble heads of bloom that so much startle the lovers of flowers in general. Those who have seen Mr Baines' wonderful plants of these will not soon forget them, having both brilliancy of colour and great size to distinguish them. He keeps them growing in a hot stove with a little bottom heat and the



atmosphere heavily charged with moisture. He also allows them to run away quite wild in their adopted home, and ties the plants down into form a week before he exhibits them at the great shows. One would be surprised to see the flowers and leaves looking up in their proper position after being twisted in all sorts of ways to form a decent-looking bush, but there they appear on the trial days as if they had been grown as shewn.

The new *Ixora sanguinea*, which Mr Williams now introduces to our notice, is a form of *Ixora coccinea*. It has the additional glow of crimson to make it more telling than the orange scarlet *coccinea*, and so exhibitors and growers of stove plants generally will prize it accordingly. It has good foliage and is free in growth, with trusses of about the size of *I. coccinea*.

#### VIOLA CORNUTA SENSATION.

No bedding plant can be grown more quickly than the *Viola*, and no bedding plant can be more effective in all weather. Let it be a sunless wet season, when *Pelargoniums* are bleached and without many flower stems, and

the *Violas* are thickly studded with flower; or let it be a dry season, and if you water them the flowering tendency will not be much destroyed. But there are *Violas* and *Violas*, there is the good and the indifferent, for we scarcely can call any of them bad if they are marshalled in lines from a colour point of view. This *Sensation* turns out to be a decided gain upon any of the *cornuta* section, from which it may be said to have sprung. The colour of the flowers is deeper, the size is larger, and the floriferousness is quite as good. Mr Williams, in sending this out, thus speaks of it:—Although we have been successful in distributing several free forms of this beautiful plant, all have been distinct and capable of being used in conjunction with each other, and the present one is no exception to the rule. It is very distinct from any other variety yet sent out, robust in habit, and a most profuse bloomer; flowers large and of a great substance, standing well up above the foliage; upper petals intense deep violet purple, lower ones clear violet; eyes small, yellow and rayed with purplish violet, and flowers a month earlier than any other *Viola* with which we are acquainted.

#### SIBTHORPIA EUROPEA.

THOSE who possess this lovely little Figwort, named after Dr Sibthorp, of Oxford memories, need no reminder as to its great merits as a decorative plant both indoors for window and plant stand garniture, and in the greenhouse and intermediate stove. It is but a foliage plant of the common green leaved sort, but those leaves, so minute and uniform in size, are of so lovely a green, the habit of the plants as they trail down over the sides of the pots, so exceedingly pretty, being produced so evenly as if formed in a mould, that the most fastidious are compelled to admire.

*Sibthorpia europæa*, as the name unmis-

takably implies, is an inhabitant of Europe generally, and is withal a British plant, being found trailing around the boulder districts and cairns of Cornish "countrie."

Every trailing mite of it will root and grow readily. It requires to be started in 60-sized pots, to be subsequently transferred to 48-sized, and if well grown to 32-sized. It seldom does well and is effective in larger sizes than this latter. When once it has been potted off finally, it had better be placed on shelves, or some such position as will permit of its dense trailing growth over the sides of the pots. A successional supply of plants should be kept up.—*W.*

*BASKET PLANTS FOR CONSERVATORY DECORATION.*

IT is not so very long since I had the pleasure of calling attention to a few climbing plants suitable for covering the walls and roofs of conservatories, and now, as I happen to have half an hour to spare, I will offer a few remarks upon plants which by their pendulous and graceful habits are suitable for growing in baskets suspended from the roof. It is just possible that I may be wrong, but I think that a few well-furnished baskets are equally as important in giving the conservatory a finished appearance as the plants which grace the stages, or the climbers which clothe the walls and adorn the roof. There is a possibility in this, as in everything else, of overdoing it. I am no advocate for crowding the roof with baskets, and I would much rather have two or three baskets kept in good order, so that they always have a fresh and tidy look about them, than to see a host strung up and left to themselves. When the plants are in a straggling half-dead condition, the baskets become an eyesore instead of an ornament. I shall treat the subject as briefly as possible, for it is not such as to require a lengthy article. The first thing we have to consider is the kind of basket to use; secondly, the soil with which it is to be filled; and lastly, what plants will grow in it.

To take the basket first, I cannot do better than advise my readers to eschew very small shallow ones. The soil so soon dries up in them, that the plants suffer severely from drought, and soon get smothered with red spider. I have seen so much of this in my time, that I well know how difficult it is to maintain a sufficient degree of moisture to the roots of the plants where the baskets are small. It appears to be forgotten that these baskets are suspended, and fully exposed to the drying influences of the sun and air, and are not set down on a cool, and possibly a

moist bottom, like plants growing in pots. For an ordinary-sized house, my favourite basket is one which measures 18 inches in diameter; when a mixture of plants are to be grown in it, and when single plants are to be grown, one a foot across will do equally well, and I like them of a proportionate depth, for shallow baskets are simply useless; they are no sooner watered than they are dry again. I am not at all partial to complicated designs in gardening affairs of any kind, and hanging baskets are amongst them. I believe the more simple they are made, the better the plants grow in them, and they look quite as well. In saying this I am not setting my face against ornament of every description, but against the queer shapes which some growers indulge in, for I am very fond of prettily-worked patterns for the outside. I must be borne in mind that the soil required to fill a basket the size I am speaking of is of considerable weight, and if the wire is not rather stout the basket soon gets out of shape. I don't like the outside of the baskets to be made of large wire—it looks coarse and ugly; and to avoid this, and at the same time keep the basket strong, I have an outside case worked into a pretty pattern with rather thin wire, and then I have one made to fit into this, with stouter wire, which is placed closer together to prevent the soil from running. The inner basket is about 2 inches less in diameter, and the frame-work is made with small iron rods, and the wire run round in concentric rings, about half an inch apart. There is of course a little extra expense in having two baskets, but the advantages more than repay it. • Independence of the baskets presenting a light and elegant appearance combined with extra strength, I find that the plants do better in them, as they do not dry up so quickly when the space between the two is stuffed with moss; for the



and air cannot reach the soil and roots readily as when there is one basket only. I do not agree with burying the roots of any mass of plants deeply, and beyond the influence of the sun's rays and air. On the other hand, I am no believer in the "aeration" process, which, according to some accounts a few years back, was going to drive out of use the ordinary earthenware pots in favour of wire ones, as it was said plants made such vigorous and marvellous progress through the air getting to the roots, that the use of the former in good gardens could no longer be tolerated. I felt certain from the first that the wire pots would never come into general use, and so far I was right: I hear nothing of them now. Before discussing of this part of the question, I wish to say a word about suspending them to the roof. The common way is to hang them up with the fancy chains which accompany them, and a piece of wire, if these are not long enough. So far this is all right, and I have no wish to interfere with it; but everybody who has had to deal with baskets, and watered them every morning, particularly when they were suspended 10 or 12 feet from the floor, knows well enough what a bother it is to lumber up to them with a pair of steps, and the risk there is run of having the plants broken, when dragging the steps from basket to basket. I should propose that, instead of having the wires fixed as now, that a pulley be fixed over where the basket is to be hung, and one or two more at other points where necessary, and a cord or wire rope be brought over them, but down the side of the walls or pillars. Then the basket could be raised or lowered at pleasure, with but little trouble, and be watered in one quarter the time that is now necessary, and there is nothing unsightly in the cords if they are seen; and with a little management the climbing plants could be trained so as to completely hide them. There need to be no fear of this interfering with the plants which are twined round the chains or wire with which the baskets are suspended, for there is no

necessity for drawing them up high enough to injure them, and to prevent any accident happening, suppose the baskets are suspended 4 feet from the roof,—or if it be 20 it is no matter, the principle is the same,—fasten a piece of string or wire round the rope to prevent its passing the pulley at a certain point, and train up the climbing plants to this. With a careful man there is no necessity for this, for he will keep his eyes open, and watch the basket when drawing it up. Cords are very well, but they cannot be trusted, they soon rot, and if they should happen to break unawares and let the basket fall, the plants get smashed to pieces, and very probably the basket will receive serious injury. The best thing that I know of is small copper wire, twisted in the form of a cable: I have used it for many years in the place of sash-cords, and nothing could be better; it is both pliable and durable. My friend Mr Gray, at Norbiton Hall, Kingston uses a similar kind of wire-rope, but made of galvanized wire instead of copper, which answers the same purpose and is much cheaper. The twisted cable wire used for fencing is too stiff for our purpose, therefore it must not be mistaken for the kind I mean, which is composed of a great number of very fine wires. We have thus far settled the baskets, and will now turn our attention to the soil with which they are to be filled.

It is impossible to make preparations for every plant that is adapted for basket work, neither is it necessary. Plants requiring peat must be grown in a basket by themselves. Before renewing the baskets with soil and plants, give them a fresh coat of paint, and let them get thoroughly dry. The colour of the paint I must leave to individual taste, for it will make no difference to the health of the plants whether the wire-work is painted yellow, green, or brown. First of all, I have the space between the inner and outer basket filled with moss, packed tight, and a layer placed inside the inner one, to keep the soil from passing through the wires, and then mix up a supply of fibrous loam and rotten dung



in the proportion of two barrowfuls of the former to one of the latter, chopped up roughly. It is not a good plan to mix much leaf-mould with compost for this purpose, it makes it too light, and it dries up quickly when any quantity is used. I select loam with a good body, not light sandy stuff with no goodness in it. And there need be no difficulty in growing the plants in a healthy vigorous condition through the entire season, with the aid of a dose of manure-water now and then towards the end of the season, when they have pretty well exhausted the goodness in the soil. If the baskets are to be a credit to the house and the person in charge of them, they must have encouragement. According to my way of thinking, there is quite as much beauty in the fresh luxuriant foliage as in a moderate growth and a few flowers, and the free growth should never be checked for the sake of getting flowers.

This brings us to that part of the subject which requires us to think about a selection of plants for filling the baskets. This is the most difficult part, not because there is any difficulty in finding the plants, but rather because there are so many. It is not at all necessary that the whole of the plants employed should be of a scandent or climbing habit, for there are hosts of subjects capable of producing a beautiful effect of a dwarf upright style of growth. One of the principal things to consider is whether the plants are to be shaded; a lovely basket can be formed by planting *Ipomea limbata elegantissima* in the centre, to twine round the wire by which it is suspended; and round this plant *Nephrolepis exaltata*, and a good *Fuchsia* placed alternately, and finally an edging of *Poa trivialis argentea* and *Achyranthus Verschaffelti* planted in the same manner, with a few plants of *Cobaea scandens variegata* to droop over the sides, will properly finish off one of the prettiest baskets imaginable. For a basket exposed to the full light, few arrangements produce a better effect than this: Train up the centre a plant of the variegated Japanese Honey-suckle, *Lonicera aurea reticulata*, and fill

the centre with Zonal Geraniums, mixed white, pink, and scarlet are three good colours; Madame Vaucher for white, May Queen for pink, and Dr Lindley for scarlet, will form a good selection; and edge with *Coleus Verschaffelti* and one of the *Centaureas*. *C. gymnocarpa* is fast sale, its beautiful silvery foliage drooping gracefully over the sides of the basket has a charming effect; the only drawback this plant has is simply this: if the soil is rather rich it will grow too fast, and the foliage will then be a light greyish green instead of a pure silvery white; but this can be avoided by growing the plants to a fair size in 3-inch pots, and then plunging them into the soil, instead of planting out. In this case it would be well to make rather a large hole in the bottom of the pot, to give the roots a chance of getting through. *C. ragusina* is also good, and a nice compact habit of growth, and there is very little fear of its growing green; and a few plants of variegated and green leaves of Ivy, to trail over the sides. In place of the *Centaurea*, I should advise those who can afford it to plant Wimsett's golden *Coleus* *C. Telfordi aurea*. A more pleasing contrast than the two *Coleus* used together cannot well be imagined.

I might go on pointing out beautiful combinations, but my object is to name a few of the best plants, and leave the cultivator to arrange them according to his own fancy. The centres can be filled with *Fuchsias* or Zonal *Pelargoniums*—the bronze sections are invaluable for edging the baskets; *Hydrangeas*, *Lantanas*, *Heliotropes*, *Petunias* (double), Ferns such as *Pteris serrulata*, *P. tremula*, *Nephrolepis exaltata*, and several others which combine a free graceful habit of growth in the conservatory. Any of the coloured *Dracenas* would look well through the summer, and I must not forget the variegated *Hydrangea*, a capital plant to use in combination with them. On a push I have made effective baskets with the dwarf growing dark and green leaved *Cannas* mixed with the variegated Japanese Maize



and edged with blue Lobelia and Golden Chain Geranium. Add a few Ivy-leaved Geraniums to hang over; nothing could be cheaper or more easily managed, and the effect anything but unsatisfactory. To tell the truth, I have seen worse-looking baskets filled with plants of more value. The principal thing I had to do was to keep them well watered. Ivy-leaved Geraniums, whether plain or variegated, or Pelargonium Manglesi, are good for hanging over the sides, and so is almost any of the Ivies. Amongst other plants I might name for training over the sides, I must not forget several varieties of Kennedyas, Maurandyas, Lophospermums, Tropæolums, such as Triomphe de Hyris; Lobbianum elegans, canariense, and a few others; Cobæa scandens and C. variegata; a few of the best Clematis; one or two Cereus; C. flagelliformis and C. Malleisoni are also useful. The Passion-flowers are rather too strong-growing, but for lofty houses they are useful. Rhodochiton volubile, Dolichos lignosus, Jasminum gracile, Tradescantia procumbens, Nierembergia gracilis, Disandra prostrata, Hibbertia grossulariæ-formis, Saxifraga sermentosa, Lobelia gracilis,

are also good for drooping over the sides of the basket. And the different varieties of greenhouse and annual Ipomeas or Convolvulus are invaluable for training up the wires, or they may be employed to run over the under side of the basket.

I have mentioned a sufficient number of plants for all ordinary purposes, and all that is now required is taste in their arrangement, and proper attention as far as regards watering and other minor though essential details afterwards. I have confined myself to mixed baskets of plants, such as should be seen in all well-arranged conservatories. But if any one prefers to fill baskets with Selaginellas, Achimenes, Gloxinias, Caladiums, and plants of that kind, and grow them along in the stove, and afterwards bring them into the conservatory whilst they are fresh and the flowering-plants in bloom, they will be able to manage without my assistance. Small baskets filled with plants in that way and brought for a time into the conservatory produce an agreeable change, and give the roof appendages a peculiarly fresh appearance.—*George Gordon in London Society.*

### MAIZE OR INDIAN CORN.

AS some of our correspondents have made inquiries about the cultivation of Maize, we reprint the following remarks from Hooper and Co.'s Catalogue:—

The culture of this plant, excepting for ornamental purposes, has not been attempted much in this country. As it appears, however, not only practicable, but easy, to produce the "green" cobs, so delicious when boiled and served with fresh butter, we wish to promote the already growing taste, and by way of assisting cultivators, we extract from the *Gardener's Chronicle* a portion of the paper on this subject sent to the Royal

Agricultural Society by the Rev. T. C. Bréhaut, of Guernsey, whose experience with this plant is very great and comprehensive. This gentleman has, in his experiments, largely "sought to popularize the manner of eating Maize, so common in the States of America, and in other regions of the world (including even Southern Europe), as 'green corn,' i.e.—in a semi-ripened condition, when the grains had acquired the consistency and size of good Marrowfat Peas. The addition of a table vegetable of this delicious and nutritious nature—the food for millions of the human race, and yet, for want of experi-

ence of the sorts adapted to our climate, so strangely unappreciated here—seemed of no inconsiderable importance, the more so as it ripened in the late autumn, reproducing then the lost flavours of the early Pea and of the Asparagus.

“It would be without interest here to speak of the numerous purposes to which this most valuable plant is put, when in a dried state, in tropical regions. The drought of past seasons shews the need of adding to our resources, if possible, whatever green fodder can be grown. There are certain kinds of Maize better adapted by their growth than others to fulfil this object, being hardy and rapid in increase, and at the same time abounding in saccharine juices, which animals will devour greedily. Even the stalks when hard can be utilized by slicing them, so that there is really no waste.

“The seeds should be sown in common raising-boxes during April, early in the month in the south, and later in the north of England. These boxes should be placed in a cool vinery, orchard-house, or pit, and the plants hardened off before planting. This would be best in May, earlier or later according to the season or locality, which a short experience would decide. The risk of the young plants is common to other vegetables, that of suffering from spring frosts; a little protection would obviate this. But this season, 1870, Mr Dancer, of Chiswick, we are told, sowed a quantity of Maize in open ground in March. It was cut down by frost, sprang up again from the root, and yielded a heavy crop.

“By the end of July our Maize plants were already 7 feet high, and were then secured from high winds by stout stakes at intervals, and thin cords stretched between them, to which the rows were easily tied. Not being able to give waterings, which materially aids the growth of a plant which luxuriates in the rich alluvial valleys of tropical countries, we had it planted in shallow trenches filled with manure, and 3 inches of soil above it. These trenches retained the casual showers, and

were gradually earthed in, as for Celery. The manure kept the roots perfectly fresh, and two slight waterings of liquid manure were given during the very dry summer. This attention is not greater than is always given to Peas and other vegetables. Failures are traceable to neglect either of some, or even all, these means.

“It is not quite so easy to ascertain the exact time to take the ears as ‘green corn’ for the table. A day or two makes considerable change in their consistency. When as large and as hard as Marrowfat Peas, from twenty to thirty minutes’ boiling is enough. Serve with fresh butter to spread over them, and they are thus ready. All the uses made of Peas for soups and stews are common to green Maize. The ears can also be roasted before the fire. When dry, these fine white varieties would produce very pure flour for puddings, &c.

“Maize, in our climate, requires five months to mature the seeds for sowing, being one month more than in California. Some sorts ripened here in August. The stalks reached to 10 feet, a height only excelled its rich tropical soils. Where several sprang from the same root, the ears ripened soonest. Experiments were made in hybridizing, with some results, and also mutilating the male panicle of flowers with a view to increase the size of the ear. After several generations of mutilated plants had been experimented upon it was found the ears were increased sensibly in size. The produce of seed was at the rate of 95 bushels per acre, gathered, not from selected plants, but from numerous varieties.

“It remains only to add, that seed for sowing can be obtained in gardens in warmer districts, and always from such places as the Channel Islands; while Maize, to be eaten green in the autumn, can be grown anywhere with common attention. The same may be said of its use for forage.”

Some Indian Corn was exhibited in September in the Liverpool Exchange News Room, where it excited great attention. It was grown at Birkdale, near Southport, and



the plants were 16 feet high, and 5 inches in the stem. The grains were as large and ripened as if grown within the tropics.

The following kinds are most adapted to the English climate, and may be tried with every hope of great success :—

*Quarantain*, or *Early Canada*, early, prolific.

*New Georgian*, the whitest and most delicate for table use ; ready in September.

*Earliest dwarf White Pop Corn*, ready in August.

*New White Flint*, very productive, and fine for table use ; ready early in September.

*Early Pink*, early, and in flavour most delicate.

*Yellow Pop Corn*, very prolific and early ; in addition to its value for the table, as a forage plant it is most serviceable.

*New Striped*, from Pau, raised from seed grown in Yorkshire, very hardy, and most valuable.

*Vilmorin's New African*, very distinct, ears as large as a small pine apple, hardy, and very productive.

*Boston Ten-week*, very quick-growing variety.

*Giant Spiky Red*, very large, early, and hardy

*Bréhaut's Negro*, the darkest yet raised.

*Dancer's Early Chiswick*.

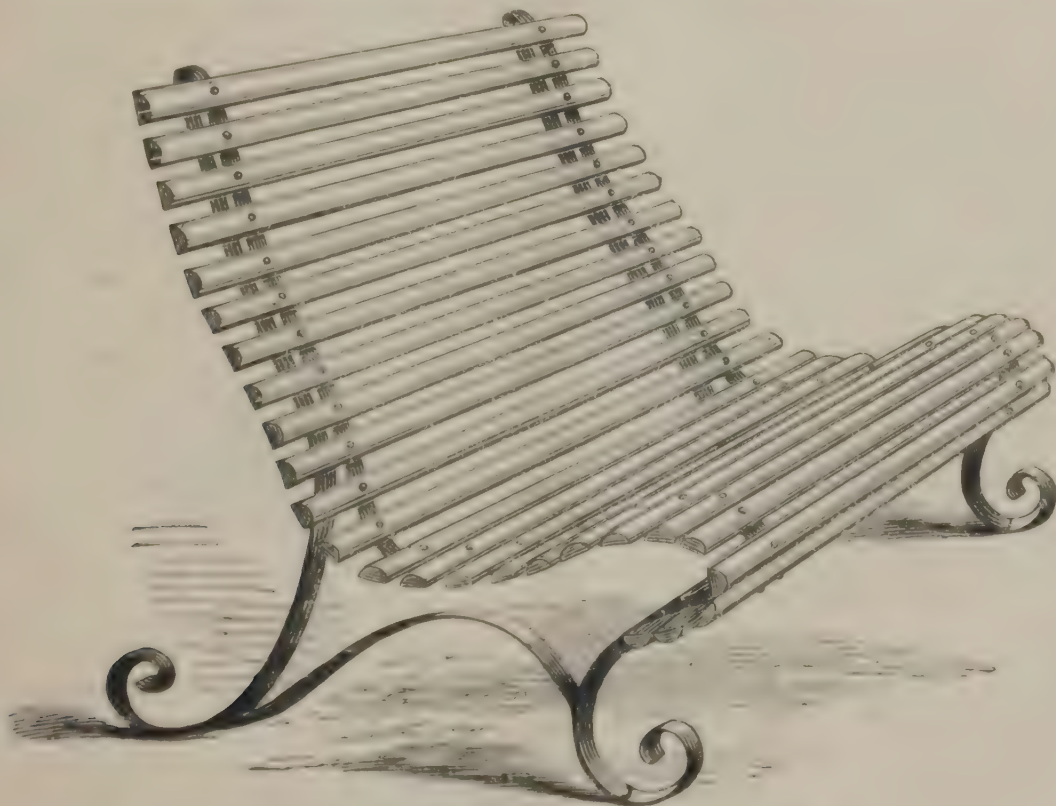
*Japanese Striped*, foliage beautifully variegated.

## GARDEN REQUISITES.

### THE NEW IMPROVED GARDEN LOUNGE.

THIS improved garden chair is about the most comfortable that has yet been designed. Garden chairs are generally made

and lounging position, and from the elastic character of the frame work it is admirably fitted for doing so. As will be seen, the frame-work is of wrought iron, and the straps of



J. J. Thomas & Co.'s Garden Improved Lounge.

to sit upon, but this offers quite a lounge for the delicate or aged person, and is very suitable for the strong and healthy. The various curves are made to suit the person in a sitting

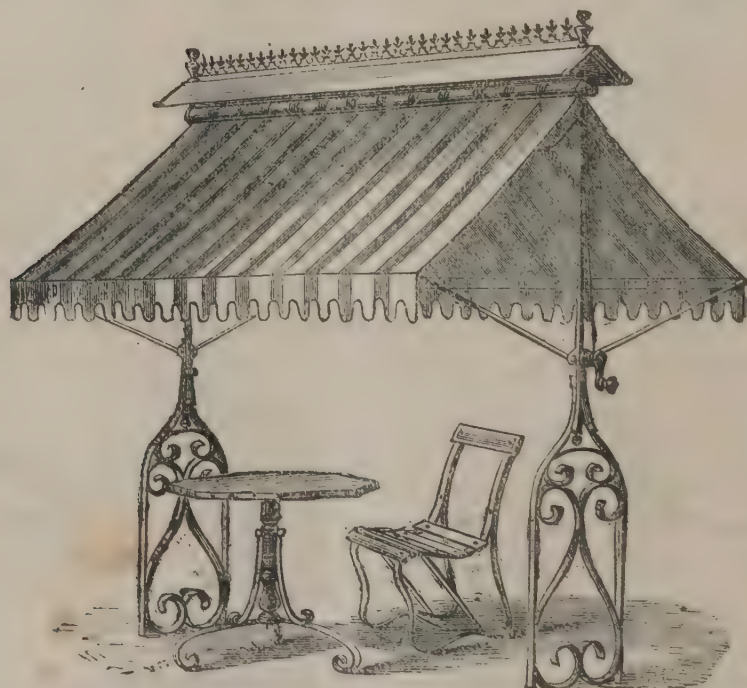
wood to fill up the skeleton are bolted to keep them in position. The looped iron supports, while they give additional strength, increase the elasticity of the chair. It can

be stained or painted any colour—green or imitation oak, for instance. can have it at no great expense to look any thing like orderly and neat about a garden,



J. J. Thomas & Co.'s Garden Lounge with Shade.

GARDEN LOUNGE WITH SHADE OR AWNING. so much the readier are we to invest with This is another form of lounge, with the view of possessing it. We cannot suggest



J. J. Thomas & Co.'s Awning or Garden Tent.

arms and awning as accessories. In sultry a better design than that offered in our en- weather shade is most agreeable, and if we graving. The makers, J. J. Thomas & Co.,

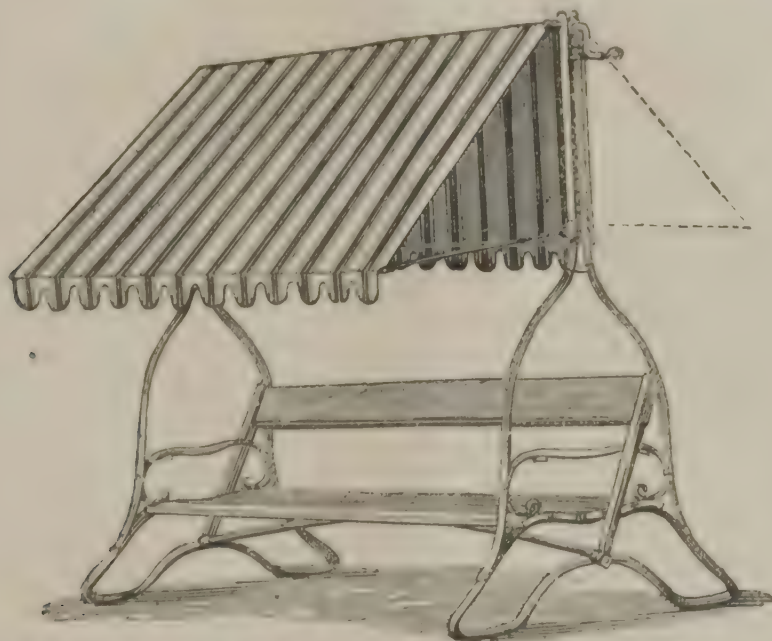


thus speak of it: "An elegant and newly designed chair with ends or supports very substantial, and entirely new in the rustic design of garden furniture, the winding apparatus (which is always more or less compli-

cover or awning can be instantly rolled up or lowered at pleasure.

#### SELF-LOCKING ADJUSTABLE CANOPY CHAIR.

This chair is of the simplest construction, cheap to buy, and comfortable with the awn-



T. J. Thomas & Co.'s Self-locking Adjustable Chair and Canopy.

cated), simplified and effective; the supports, cover, or awning, can be immediately detached, the latter rolled up and enclosed in a box when not required for use. Painted any colour; oak, or representing oak sapling with the bark on are generally preferred for the ends, the wood-work polished and varnished."

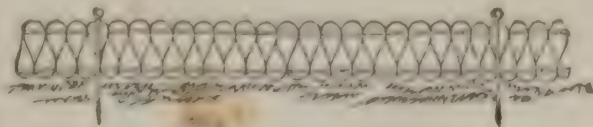
#### INDEPENDENT AWNING OR TENT.

Some prefer to have an independent awning and Messrs Thomas have provided for the want in the sample engraved. It is useful in any locality, about public places as well as private places, to have a tent that can be raised at pleasure, so as a seat or seats may be taken to sit temporarily under. Moreover, when it is a portable thing it is all the more to be prized, and here we have the needful in every way catered for and provided at no great cost. It has wrought-iron ornamental frame work, fitted with pronged feet to fix into the ground, so simple in construction, that any one may fix it in a few minutes. With a simple winding apparatus the cloth

ing that covers it. It can be arranged with the adjusting apparatus to lower the one half of the shade to screen the back or throw it up in the usual way. The seat, too, by a slight movement can be exchanged to face either side. Messrs Thomas are the makers of this.

#### CROQUET GREENS AND APPLIANCES.

A Croquet Green being now generally attached to every villa garden, and, in fact an almost necessary adjunct where there are daughters, it becomes Pater-familias to take care that it is properly made and fenced.



Croquet Bordering—No. 1.

The best plan, of course, is to sink the Croquet Green about a foot or 15 inches below the surface of the surrounding walks; but as, in many cases, this is impracticable, primarily on account of the expense, the next best plan is to enclose the Croquet Green

with a temporary fence of from 9 to 12 inches in height. In our February number we gave two designs for a Croquet fence of this description, and we now give two illustrations



Croquet Bordering—No. 2.

of others from the designs of Messrs J. J. Thomas & Co., of 285 Edgware Road. These are made in rolls of 50 yards, 9 inches high, and in lengths of 3 feet for those 12 inches high. With each is sent out a number of iron stakes, by which the fencing may be fixed in position and removed instantly. The price is very reasonable, ranging from 1s. 3d. to 1s. 6d. per yard, according to height. We have much pleasure in recommending these Croquet fences to our readers.

#### BORDERING FOR FLOWER BEDS.

The firm of Messrs Thomas, of the Edgware Road, have also introduced two very elegant designs for garden bordering, of which

we present illustrations. The first represents a Gothic pattern rustic design, painted in imitation of rough wood. The second, which is of twisted or spiral iron, has a very pleasing effect, and is besides very durable, the iron being galvanized, and there-



Rustic Gothic Bordering for Flower Beds.

fore impervious to rust. We have tried both, and it is difficult to say which pleases us the most. The rustic Gothic pattern, if expense be not an object, may prove the most substantial; but the spiral or twisted



Spiral Bordering for Flower Beds.

pattern is to be commended for its cheapness, being half-a-crown only for a dozen arches, while the rustic pattern costs double.



## Arboriculture.

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### THE PRIMORDIAL APPLE.

THIS is a subject of great interest to horticulturists. In these columns frequent allusion has been made to the investigations and travels undertaken by Professor Karl Koch, with the object of obtaining more precise information on this point; quite recently he has published the result of his endeavours to ascertain the descent and native habitats of the Apple, from which we cull the following particulars.

In the first place, contrary to the opinion of perhaps nearly all botanists, including even those who have given the matter some consideration, he believes that the Apple is nowhere indigenous in Europe, although he adds, it may already have been in cultivation in pre-historic times, and even become widely naturalized. Professor Koch reminds those who hold the Apple to be wild, because pips have been discovered in the remains of pile-dwellings, that Linseed and Wheat grain have also been found, and, arguing on the same principle, these two plants would also be indigenous. Moreover, this view seems to be strongly supported by the fact that seeds collected from the forms of Apple found growing apparently wild in forests and other localities in Germany, but more especially in France, produce few seedlings resembling each other or the parent plants. Within Koch's personal experience seedlings raised in this manner presented the widest variation; and it is well known that many of the best varieties in cultivation were accidentally found.

To give exact information respecting the native country of the Apple, and indeed of our core and stone fruits generally, is at present impossible. All that has hitherto been written upon the subject amounts to little

more than supposition and speculation, founded mainly upon book study, instead of personal travels in the countries indicated.

Owing to the encouragement and interest of men like Goethe and Humboldt, Koch was enabled to undertake his first journey from 1836-38, for the purpose of gaining more reliable information on this and other matters. This was followed by a second visit in 1843-44. The region visited was the southern slope of the Caucasus, including Colchis (Mingrelia), Pontus, Armenia, and Kurdistan, eastward to the shores of the Caspian.

The vast extent of Apple woods encountered in his travels, especially in southern Daghestan, appeared so convincing, that he at first entertained the idea that it must be indigenous, but further explorations led him to a different conclusion. He says:—"Although probably introduced and naturalized in pre-historic times, the Apple was no more originally wild in the southern Caucasus than was the Grape Vine in the virgin forests of Mingrelia," which he was also inclined to believe in the early part of his investigations.

Already in the time of Herodotus cultivation was in an advanced state, and with its decline the Apple, under the naturally favourable conditions of that region, would gradually take possession of the soil. Further south than the highlands of Armenia we need not seek for the native country of any of the species of the *Malus* section of the genus *Pyrus*, as they will not succeed in a warmer climate. Another thing is clear, that cultivation of some sort must have existed in the native country of the Apple at a very early period. It is well known that cultivation was practised in China and Japan when Europe still lay enveloped in

darkness, and many suppose it to be the very oldest of cultivated countries. Why should not these countries be the home of the Apple?

It should here be observed that Koch thinks it possible that the Apple-trees of our orchards may have descended, not from one species alone, but from the five species described below. Probably, however, more critical investigations may eventually lead to their being reduced to two species—one shrubby, having reddish petals and producing suckers, and the other arborescent, distinguished by its white petals and absence of suckers.

If we except *Pyrus spectabilis*, which is more generally grown in Japan as an ornamental tree than as a fruit tree, and is probably not a parent of any of our garden forms, there is no species of the sub-genus *Malus*, native of that country, from which our cultivated Apples could have sprung.

On the other hand, China, with its enormous extent of territory, may have furnished the species from which they sprang, for there is no doubt that all the species mentioned below still exist in a wild state in the north and west at least, and even farther westward into the Kanates of Khiva, Samarkand, and Bokhara. That any of the parent species of the Apple are wild south of the northern slopes of the true Himalayan mountains is very unlikely, though they are cultivated and probably naturalized. But they are represented by other species of the genus *Pyrus*.

During a protracted stay on the western shore of the Caspian, Koch had frequent opportunities, in his intercourse with the merchants of Tartary, of instituting inquiries respecting the fruit culture of the central Asiatic highlands, and there is no doubt, he says, that the Apple and a species of grain, *Sorghum cernuum*, constitute the principal diet of the inhabitants. We append Koch's descriptions, somewhat curtailed, of the five species alluded to above.

1. *P. pumila*, syn. *P. præcox*.—This always produces suckers, and, on account of its rapid growth, is usually employed for cordons and dwarfs. We commonly distinguish two prin-

cipal forms bearing special names—*Johannis* and *Split-apfel*; but in England they are both known under the name of *Codlin*. In some parts of Germany, too, they are united under the name of *Paradise Apple*, whilst, on the other hand, the latter name is sometimes restricted to the *Johannis Apple*. Moreover, there appears to be little uniformity in the nomenclature of the two forms. So far as Koch's researches go, the name "*Paradise Apple*" appears to have come into general use towards the end of the Middle Ages; and Ruellius, in his work, "*De Naturâ Stirpium Libri Tres*," published in 1536, is the first botanist who mentions it. The *Johannis Apple* differs so materially from the *Split-Apple*, that one might almost suppose them to represent distinct species. The first possesses only a slight hairiness, limited to the young shoots and the underside of the young leaves, and the shoots themselves ultimately assume a shining brown colour. It is worthy of note, too, that the roots are very brittle. The leaves are somewhat elongated, and narrowed towards both ends. The pale yellow fruit is longer than broad, and not unfrequently laterally flattened, of a sweetish taste, and as a rule produced in clusters, ripening about the end of June or beginning of July.

2. *P. dasyphylla*.—This does not as a tree produce any suckers, but Koch is nevertheless inclined to look upon it as a descendant of the so-called *Split*, or *Tussapfel*, the *Doucín*, *Doucain*, and *Pomme de St Jean* of the French, Belgians, and Dutch. As a bush, this form differs chiefly from the *Johannis Apple* in its denser hairiness, giving the leaves and young shoots a greyish-green appearance. The leaves are shorter or more or less rounded at the base, and the roots are so tough as to be used for tying. The depressed fruit is also sweet, but ripens about 14 days later, and is beautifully tinged with red on the sunny side.

The arborescent *Split Apple*, which is described in the "*Dendrologie*" as *P. dasyphylla*, may be the parent of the *Reinettes*. It was principally this that the Professor



found in the Southern Caucasus, and especially abundantly in Daghestan. It is also one of the principal forms occurring in our woods and hedges.

3. *P. sylvestris*.—This represents another of the naturalized forms, distinguished by its much slighter hairiness, and it is sometimes almost quite glabrous. It also occurs as a shrub, producing suckers, and as such it has been described as *Malus frutescens*.

Perhaps this proceeds from the Johannis Apple, and stands in the same relation to that as *P. dasyphylla* does to the split Apple. Its crown does not spread so much as in the last-named species, but has an oval outline and denser growth. The shorter, ovate, or even almost heart-shaped leaves have a thinner texture, and are only when quite young clothed with long hairs on the marginal teeth. The flowers are of a beautiful rosy red, differing in this respect from the two foregoing forms. The fruit is of a roundish shape and reddish colour, extending often to the flesh. On the sunny side the red is often very deep.

All the sweet Apples with reddish flesh, the streaked and many other summer Apples, belong here. On dry poor soil both this and the last become thorny.

4. *P. prunifolia*.—Although this does not grow very high, it always forms a tree; and Koch has never observed suckers. The stem is straight, with a smooth rather light-coloured bark and an oval crown. The leaves are even thinner than in *P. sylvestris*, at first slightly hairy, but finally glabrous. The petals are milk-white, and with a longer claw than any of the preceding. The fruit is roundish or somewhat depressed, and only from 4 to 6 lines in diameter. Its original colour is a greenish yellow, but under cultivation it has produced red striped and wholly red-fruited varieties. The fruit has gradually increased in size, and is commonly found in Poland, and also in Siberia, as much as 1 inch in diameter. It has the peculiarity that shortly after maturity the cellular tissues

of the flesh separate, become granular, and undergo chemical changes that give the fruit a glossy appearance; hence the Russian appellation of ice-apple.

Under cultivation this species has produced some varieties that are highly esteemed in Russia, as they will succeed farther north than any other. In Germany they are cultivated under the name of Astracan Apples. Berkhausen considers them as belonging to a distinct species, which he calls *P. siberica*, while the elder De Candolle named it *P. astrachanica*. The fruit of the wild *P. prunifolia* is harsh and sour, whilst that of these cultivated varieties possesses an agreeable sweetness. But the former is universally preserved in vinegar by the Russians.

Nurserymen, especially in France, frequently confound *P. prunifolia* with another more shrubby species, named on account of its smaller fruit, *P. baccata*. The principal distinction is, however, the early fall of the calyx-lobes, which gives the fruit a naked appearance resembling that of the Cherry.

In their native country, the north-east of China, numerous hybrids between *P. baccata* and *P. prunifolia* exist, and they are also cultivated in Japan. They were introduced by Siebold some twenty years ago, and are now pretty generally employed with us as ornamental shrubs.

5. *P. spectabilis*.—This, the handsomest species of its genus, has probably contributed nothing to our cultivated Apples; but its large flesh-coloured flowers have made it a universal favourite. Hybrids between this and *P. prunifolia* exist, but so far as I am aware, none of them produce edible fruit. In outward appearance this and *P. prunifolia* are so nearly alike, that in the absence of flowers or fruit they are with difficulty distinguished. The petals of the former are larger, and furnished with a long claw, and each cell of the fruit is divided again by a partition extending from the circumference to very near the centre.—*W. B. Hemsley, in the Gardeners' Chronicle.*



*SPLENIC APOPLEXY AMONG CATTLE AND SHEEP.*

**A**MONG the many affections common to domestic animals there is none scarcely which has given rise to as much controversy and speculation as splenic apoplexy. Observed only by a few within the past twenty years, it has been considered by others quite a new and totally distinct affection, but when the archives of veterinary literature at home and abroad are searched, evidences are abundant of its previous existence, and careful records shew that scientific men have long been alive to its fatal effects, and no less active in attempting to fathom the cause as well as to solve the problem of cure and prevention.

Like braxy and black-quarter there is always present the tendency to the sudden and dangerous plethora in all the victims; the best and most active in thriving are first seized, and rarely recover. As stall-fed animals have been most frequently affected the conclusion first arrived at was that food rich in nutritive elements, supplied in superabundance, with warm stables, and no exercise—all conducing to the formation of blood too large in quantity and too rich in quality—was the sole cause. So far the conclusion was found to be correct. After death the spleen or milt was found to be engorged with black blood, ruptured, and its structure broken down; besides, other organs unmistakably exhibited the usual indications of blood-poisoning, and when active measures of prevention were set on foot—when food less nutritious, and suitable medicines were administered, and, in addition, more liberty has been given to the animals previously confined so closely, the malady has rapidly disappeared, but always recurred when the same system of forcing has been again adopted. Among sheep, too close folding, with similar conditions as to food, &c., the same results have arisen.

The affection is peculiarly remarkable from the fact that the flesh of such animals dying from it is quite unfit as an article of food, and when partaken of by dogs in a raw state it proves highly poisonous to them. If the butcher, in flaying or cutting up the carcasses, should by chance wound his flesh in any part, a rapid and violent death is almost sure to follow; and animals following the victims—cattle or sheep—and grazing where their blood or saliva has fallen, are safe to suffer fatally. From such occurrences, which have now and then taken place, it has not unreasonably been concluded that the disease is contagious or catching. There is, however, this difference: a contagious malady usually reproduces itself in other animals of the same species, but splenic apoplexy does not. A blood poison of another form is engendered more rapid than splenic apoplexy.

Since veterinary science has extended so much of late, and men of greater acumen have enrolled themselves in its ranks, observation in connexion with some of the obscure and less known ailments of domestic animals has been encouraged and stimulated, and, as a result of this, we are now able to add other causes besides a highly nutritious food and want of proper exercise, which give rise to splenic apoplexy and its allied forms of blood poisoning. Our intimate acquaintance with some of the large grazing tracts of land, especially those lying low and suffering from long periods of inundation with insufficient drainage, has furnished many instances which prove that the soil has greatly to do with the production of this affection; and again, on some farms where a system of heavy manuring is practised on the low-lying meadows, such diseases have occurred with regularity and sudden fatality. In addition, also, in such localities the presence of a pure spring or rivulet of clear, running water is rare. That



which drains from the land is rich in organic impurities and salts, the result of decomposition of animal matter; and the vegetation growing upon the surface of the soil is thoroughly impregnated with the same impure fluid. As a rule, drainage carries off all excesses of this kind; but in the instances we are considering the want of drainage, with impure and stagnant water in ponds, ditches, or so called rivulets, militate against the efforts of the soil to unload itself. The soil has a remarkable power of disinfection, by which the rotting or putrefying ingredients of manure are at once chemically altered and the odour destroyed. The sun and air, too, play no less important parts in the work of transformation. The first promotes the destructive process, and the latter dilutes the odour arising from it, at the same time by the ozone it contains, suppresses or neutralizes it. But there is a stage beyond which the soil may not have its corrective influences; it may be so charged, and is being constantly saturated with manurial elements as to be positively poisoned by it. The water draining from it and the vegetation subsisting upon it are likewise poisoned, and the animals subjected to an existence upon all of them likewise succumb to fatal blood-poisoning. In such cases, the land, to be safe, must receive attention, the brooks or ponds must be cleared, or sun and air over the surface are but so many more agencies for the promotion and propagation of malaria and fell disease. It is quite as possible to over-

do the land with manure as to be guilty of starving it, and no condition is worse than that in which it becomes naturally impregnated with animal matter as a result of locality, bad drainage, and frequent inundation. Top-dressings of lime or common salt may do good if all other manure is withheld, but the best system is to make the brooks run, if possible, or create a new and pure supply of water, close up all the stagnant pools, and put such pastures under crop for a few years. Of course, all this is easier said than done; nevertheless, if we consider the annual mortality arising from these affections, the proceeding will be found to be of practical importance, and ultimately saving to the extent of thousands of pounds. With the present conditions before us, it is now a serious question with every one whether more land under grass is not required; and if the necessary attention to breeding and grazing be stimulated and encouraged as it ought to be to meet the growing demands of our country, the plan of turning over the oldest and most fatal pastures should be adopted in rotation, others, hitherto long under the plough, being laid down to take their rest accordingly. Setting aside these principles, we shall always fail to eradicate such diseases by medicines alone; no system is complete that does not embrace a wider range of action, and none so elaborate and effective as mutual blending of the resources of the sciences of agriculture and veterinary medicine in their widest and fullest acceptance.

*THE DISEASES OF SHEEP.*

FEVER ABOUT AUGUST, SEPTEMBER, AND  
OCTOBER.

FROM the excellent lecture by Mr H. Wood, delivered before the Wayland Agricultural Society, we make the following extract:—

This is a disease which of late years has assumed a very serious character. Hundreds of lambs have been lost every year from it; and in proof of this I can only ask you to look at the state of many flocks during the past season. The disease makes its appearance in all parts of the country, and more or less the same symptoms are everywhere apparent. The lambs look dull; their coats are dead and staring, and are harsh to the hand: they suffer from great thirst; the veins of the eyes are congested, and have a glassy appearance; the animals fall off from their food; there is a discharge from nose and eyes; the skin flakes off from the gums, looking very much like pieces of white blotting paper; the tongue is pale of a bluish-brown colour; there is sometimes a brown fur on the teeth; and generally there is constipation—which I hold to be a very bad symptom. Sometimes there is scour, which may relieve the animal, and is not the worst form of the disease. As the disease advances the animal suffers considerable pain, which it shews clearly by the motion of its head from one side to the other, and as death approaches it utters a peculiar short moan, which it is always most painful to me to hear. When this is heard, it is a plain proof that the animal is suffering greatly and will not live long. In the last stages of the disease the breath becomes most offensive, and the lungs affected. When dead the lungs look very much like liver—learned men call it hepatized; the throat is ulcerated; the coat of the fourth stomach is gangrened or spotted. Of these “spotted

stomachs” we heard a very great deal in the year of the cattle plague. A learned man in the south would have it that animals with spotted stomachs had got the cattle plague. I did not think so. If they had the cattle plague, then the cattle plague had been in existence this year, for I saw the same symptoms lately. The disease is one that does not break out all at once, but it generally runs through a lot. I have found that old sheep-fed pastures and rank-grown grass produce the disease; of which it is a singular feature that it has been very frequently observed to break out after heavy mildew—more especially mildew of a brown snuff-like character—which seems to act on the bowels and produce constipation. I have seen lambs sicken seven or eight days after such a mildew, and also after hoar frosts. I am not prepared to say that the mildew produces the disease, but I should like to know whether it precipitates the disease or not. It is always desirable when lambs are feeding, whether they are healthy or not, that flock-masters and shepherds should very carefully watch their dung, because I am perfectly convinced that if it is in its natural state—and every shepherd knows what its natural state is—there is not much to fear. When once you find that the dung assumes the form of hard dry buttons, I would have you take care—danger is near at hand. The early treatment of this disease is a thing much to be desired; for I am perfectly convinced—whatever the loss of sheep may have been in this and previous years—this is a disease which can be easily cured if grappled with in its earlier stages, but that if it is allowed to run on for two or three weeks without attention, the chances of a cure being effected are very small, because the lungs are then so hepatized that unless you can put



new lungs into them a cure is scarcely possible. I will give you an instance:—Two lots of lambs were affected. One lot, all of which shewed the same symptoms at starting, was treated in the early stage and never appeared to look behind, but went on and recovered—not one single lamb died. In another lot the disease was allowed to run on for two or three weeks, and it consequently got more hold of them—of these eight or ten died before the disease was checked. Now, the only thing to be done at starting is to give a dose of alterative aperient medicine, which will generally effect a cure. Then comes the question—what medicine is best to be given? I believe if you have got a good intelligent veterinary surgeon in your own district—one who has directed his attention to the management of sheep in general—you would do well to consult him. I would here wish to say that there are many veterinary surgeons who understand their business thoroughly, but few of them are sufficiently willing to admit that up to within the last few years, they had not made sheep their special study. I only hope they will do so, because there is a very wide field open to them, and I am persuaded that if they do make a special study of sheep and their diseases, very much good will be done. Now, I would advise you to consult a veterinary surgeon; but I have found that even veterinary surgeons make most extraordinary mistakes as to the quantity of medicine they ought to give. Therefore, when you go to them to ask for advice, I should recommend you to tell them to give you for your sheep a dose equivalent to four times the strength of a dose that would be given to a man—then he will be pretty well right. I have often been amused at the reports which I have seen in some newspapers. The other day I saw a very learned letter—I don't know whether it was written by a veterinary surgeon or not—in an agricultural newspaper, and I cannot help noticing it. The question was asked as to what was the proper dose for a sheep, and the answer written back was,

“Give them half an ounce of salts!” Why, we give them four ounces. I am not inclined to fancy that these homœopathic doses of salts do any good. I should advise you to separate your lambs into three or four lots, according to the case—as for instance—first, the badly affected; secondly, the less affected; and thirdly, the least affected; because you will often find that those badly affected will require the most careful nursing. I merely mention this in order to tell you what a happy hit I was fortunate enough to make during this autumn. Mr W. Farrer, of Kempstone, had his sheep badly affected, and I am sorry to say that it was the second time during the past few years. He asked me to recommend him what to do. I told him to give them a dose of alterative aperient medicine, which he did. In the course of a week or so he wrote me word that some of the weaker animals, although they were alive, appeared to be losing strength. By a kind of happy thought—for I felt in some difficulty myself as to what to recommend—I wrote to him as follows:—

“Take an egg and well beat it; add two table-spoonfuls of brandy, and  $\frac{1}{2}$  pint of oat-meal gruel. Mix thoroughly; and when sufficiently mixed you will have enough for two doses. Give that to them three times a day.” He wrote to me in the course of the following week that this happy thought had had a very good effect. The other day I had another letter from him as follows:—

“I have now great pleasure in telling you that my hoggets have very much improved in health and condition, which I attribute entirely to the timely medicines, combined with proper food; and I consider the egg and brandy mixed with gruel has been of very great benefit to the weakly and delicate animals in restoring and strengthening the tone of the stomach when other remedies had failed. You are quite at liberty to make what use you please of this.”

After all, there is no disguising the fact that a great deal will require to be done in the way of changing the food.

## Dairy and Poultry Yard.

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### TEMPERATURE—DEEP AND SHALLOW SETTINGS.

IT has frequently been a moot point as to whether the most butter can be made by deep or by shallow setting of the milk. All butter makers must be glad to get light on this question, and we therefore print the following statement made by Hon. F. D. Douglass, of Whiting, in a recent address before the Vermont Board of Agriculture. From Mr Douglass' reputation as a butter maker and a careful experimenter, his statement is of more than ordinary interest. He says:—

You will doubtless ask whether as much butter can be obtained from deep as from shallow setting? I answer emphatically—Yes, where the right temperature is maintained. Whatever doubt may arise in the minds of any upon this subject, with regard to results when the weather is cool and most favourable for the success of shallow setting, there can be no doubt concerning this point for the entire season, and most certainly not during warm weather. I have experimented upon this subject, not so much to satisfy the public about it as myself, and consequently some of my experiments have not been conducted with that nice accuracy of detail, and the results so carefully recorded, as they would have been had they been designed for the public eye. I will, however, give you the details of one of these experiments, which was the most carefully conducted, that you may understand upon what grounds I base my conclusions in this matter, and if you discover defects in any of the conditions upon which this experiment was conducted, I trust you will freely point them out.

On the 17th day of June, 1871, I divided the day's milk of my entire dairy, then consisting of twenty-two cows, into two equal parts. The amount given by each cow was weighed and accurately divided by weight immediately after being drawn from the cow. One-half was strained into common pans, which were filled about two-thirds full, and placed upon shelves in the milk room. The other half was placed in pails to the depth of about 11½ inches. These were set in vats of water in the same room, and the temperature reduced to 60 deg., which was the same as the air in the room at that time. They were allowed to stand until the milk in each had become thoroughly loppered, and it was evident that no more cream would rise. The milk in the pans reached that point and was skimmed in forty-eight hours; that in the pails stood twelve hours longer. The range of the thermometer in the room was from 60 to 63 deg. until the last twelve hours, when it rose to 68 deg. The thermometer indicated the same range of temperature in the milk in the pails as in the air, except that it did not rise so high by 2 or 3 deg. during the last twelve hours. The rise spoken of could not have affected the result, as the pans had already been skimmed, and the cream had doubtless all risen in the pails.

The weight of cream produced from the pan was 28½ lb.; from the pails, 33½ lb. This was all churned June 22, each at the same temperature, 60 deg., and in the same churn. Each was washed in precisely the same manner, and taken from the churn into the same butter bowl and carefully weighed. The scales used were Howe's platform



scales, nearly new and in good order, but would not indicate a difference of less than  $\frac{1}{4}$  lb., and by them there was no difference indicated in the weight of the two batches—each weighing 12 lb. before the salt was added. The difference in the weight of the cream is easily accounted for, there having been an evaporation from the pans amounting to 5 lb. in weight more than from the pails, caused by the greater extent of surface exposed.

It will be seen that this experiment was conducted under most favourable circumstances for the success of the shallow setting.

The result will be different whenever the temperature of the room rises much above or falls below 60 deg., and is relied on to temper the milk in the pans, while the milk in the pails is tempered rightly by artificial means. It will be readily seen that the amount produced by the pails will be greater than that from the pans just in proportion as the degree of heat or cold in the room rises above or falls below a right mean. It is upon this, and other like experiments, with the general fact of the increased production of my dairy cows since its adoption (deep setting) that I base my conclusions in this matter.

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### STORING EGGS.

FOR storing eggs a very good plan is to have a large board pierced with holes in regular rows. Many breeders keep them in bran; and this latter method is, perhaps, best for those meant only to be eaten; but for setting hens the pierced board has many obvious conveniences. They should be always kept with the large end downwards. This direction being exactly contrary to that usually given, we should state that our attention was first called specially to the subject by a most intelligent lady, who advocated this plan, alleging as the probable reason of its superiority, "Keeping eggs on the small end appears to me to cause the air-bubble to spread, detaching it from the shell, or rather from its membranous lining; and after being so kept for a fortnight the air-bubble will be found to be much spread, and the eggs to have lost much vitality, though still very good for eating." She then described her success the other way, adding, "Owing to this method of storing, such a thing as a stale egg has never been known in my house; and as regards success in hatching, for several seasons, when I was able to attend to my

poultry myself, of many broods set every egg produced a chick." We were by no means hasty in adopting or recommending this plan, but after careful observation and comparison for two seasons, have proved indisputably that both for eating or setting, eggs do keep much better the large end down. There is after a week a marked difference in eggs kept in the two positions as regards the spreading of the air-bubble—which is well known to affect both the freshness for eating and vitality for setting of stored eggs—and after three weeks the difference can be discerned even by the taste alone. It will, of course, matter little which mode is adopted, provided the eggs are used for either purpose within a short time; but the longer kept, the more the difference from the two positions increases, and while eggs stored with the small end down cannot be depended upon after a fortnight to produce more than a proportion of chickens, those kept in the way we now advocate will keep perfectly good for hatching a month, or even more. We have sent thirty dark Brahma eggs to Ohio, U.S., which were twenty-two days on the road; yet they produced eighteen strong, lively chickens, or sixty per

cent., though the eggs must have been nearly a month old. We ought, however, to add that, as already observed, we based our change of plan not on any single instance, however striking, but on systematic trial for two seasons. During each of these seasons we sent out about forty sittings (of ten each) dark Brahma eggs, and we satisfied ourselves most fully that, with the ordinary age of eggs thus sold by English fanciers—say from three to thirteen days—the difference in favour of eggs stored the large end down amounted to nearly 5 per cent. This may not be much ; but, as already remarked, with age it increases, and we have proved as conclusively, by actual trial, that eggs may be set and suc-

cessfully hatched, with remarkable uniformity, at ages which, kept in the usual method, would be nearly hopeless. We have known eggs kept a month hatch fairly, even on the old system ; but we are now speaking of usual and average results, and simply place at the service of fanciers in general the results of patient trial, which have abundantly satisfied ourselves that there is a real difference in the product of the two positions. With regard to packing, so far as actual injury is concerned, we believe there is no difference whatever in the two ways ; but if the journey occupy any time, the same position should be maintained for similar reasons.—*Wright's Illustrated Book of Poultry.*



## The Country Gentlewoman.

### ORNAMENTAL GRASSES.

**I**N these days of prolific in-door decoration, we think it worth our while to draw our readers' attention to a neglected class of plants that have elegance about them to commend them to the bouquetist, to the in-door decorator, and to the out-door decorative department. There is so much stiffness about the habit of plants in general that are remarkable for flowers, that anything easy and graceful lends a charm to them, either in their growing state when they are ablaze in the parterre in August, or when they are cut for decorative purposes in-doors. What more elegant plant could we have for general service purposes than the very old and well-known border plant,

#### STIPA PENNATA !

Its plumes of inflorescence, as soft as the finest down that could cross a lady's cheek, bend gracefully before the breeze, and when



*Stipa pennata.*

cut and introduced among other plants, it appears even more beautiful. It is a grand

plant for winter decoration, and no border of any kind is complete without it.

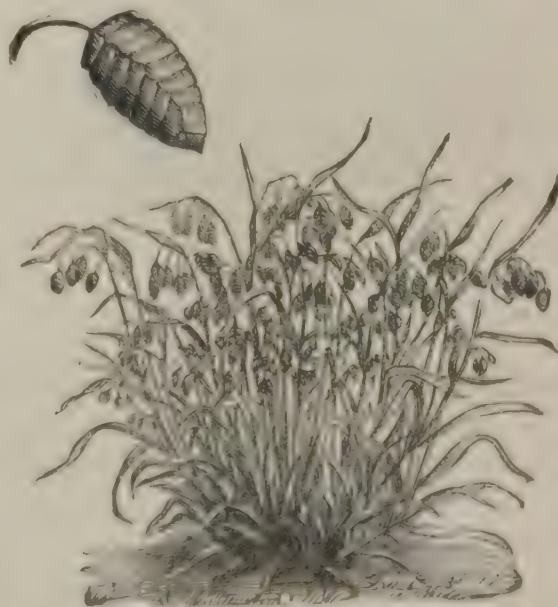
#### HORDEUM JUBATUM

Is a hardy annual, and consequently not



*Hordeum jubatum.*

difficult to rear. It comes from seed sown in a shady border quite freely, and grows



*Briza maxima.*

into that sort of plumed inflorescence which the engraving represents. It is a capital



companion plume to *Stipa pennata*, having a glow of colour in the plumes which is wanting in the hardy perennial. These are both such elegant plants that we present them to the notice of our readers from Messrs Hooper & Co.'s *Gardening Guide*.

#### BRIZA MAXIMA

Is the great species of Quaking Grass that we sometimes see cultivated. It is far too seldom to be met with, because of its special distinctive character, mixing and contrasting well with the other grasses above illustrated. It, too, is a hardy annual, and makes from its nodding spike a handsome addition to a collection of border plants.

#### ZEJA JAPONICA FOLIIS VARIEGATIS

Is another species of Grass, or rather Maize, highly ornamental. Like all the other Maizes



*Zea japonica foliis variegatis.*

it must be treated as a half-hardy annual, and when so treated and sown early, say in March, plants of ample size can be had for general decoration in August and September. This variegated-leaved form is striking in its white and green stripes, and tells well isolated in a herbaceous border, or among a group of bedding-out plants. It, too, can be told off for ornamental purposes when cut, although we prefer to see it growing in the borders,

and brightened up with the showy colours of *Calceolarias*, *Pelargoniums*, *Verbenas*, &c.

#### HOW ORNAMENTAL GRASSES MAY BE EMPLOYED.

As can be seen from the engravings, ornamental Grasses have an ease and a style about them when properly grouped that is admirable. They look quite at home decorating the vase where there is scope for numbers, or the centrepiece of a dining-table, which must always be lean and elegant. In both [instances Messrs Hooper have set them off to much advantage, interspersing here and there a few flowers to brighten up the different designs. The plumes of inflorescence that might otherwise look stiff-like as a head of Wheat or Barley, here group grandly, giving a stateliness to the lot which they *tout ensemble* would not have. The elegant, minutely cut forms of *Agrostis* and *Brizas*, and other small feather Grasses, as it were, fill up the vacant ground to the best advantage, and flowers nestle quite charming-like beneath their shade. We would that there were more of this airy, elegant way of decoration. Judging by what we see at home and at flower gatherings, there is a great deal to learn yet, and that great deal is not in elaborating the decorations, but in simplifying them, and using more of the common herd of plants, and not crowding them, as is often done, too confusedly together. If our lady readers would take up this subject in earnest, we should be hopeful of a coming time of better taste in all in-door decorations. As a rule they are too bumptious-looking, if we might so use the word, too ambitious-like, and withal, vulgar in the extreme.

The following observations on preserving Grasses, Ferns, &c., we take from the August number of *THE VILLA GARDENER*.—

Summer is passing; but its fruits and flowers still remain, and we can find, in forest and field, lovely Grasses and Ferns, which we can preserve to adorn our parlours and bed-chambers, and to serve as sweet reminders of summer's joys.



Grasses should be gathered early in July, if we desire them to retain their bright hues without the aid of art. Gathered then, tied up in large bunches, and hung away in a dark closet, they come forth at our bidding, fresh and green as when plucked. Now, by brook-side or in shady places, we can find graceful Grasses, which will prove additions to our winter bouquets, but they will lose their colouring, and require a dip into "Judson's Green Dye." Dry them again, and they

"Judson's Dyes," and exquisite bouquets can easily be manufactured. These "everlasting" flowers should be gathered as soon as the outer leaves open. Tie them up in bundles as you pick them, and hang up, flowers downward, to dry. Treated in this way, the stems are straight and more easily used. They can be hung to dry in one's chamber, not requiring a darkened place. Most of these flowers are allowed to remain too long upon the bushes, and their beauty is spoiled. As they



A Group of Ornamental Grasses for Vase.



Design for Dinner Table.

will last for years. Wild Oats, Feather-grass, and all their various species are very ornamental in winter, and mingled with the everlasting flowers—*Acroclinium*, *Xeranthemum*, and the white, yellow, and crimson *Helichrysums*—they vie with their more perishable sisters, whose glories are on the wane. We have just arranged two small vases for the coming winter. The brilliant pink and white *Acrocliniums* add much to their beauty. The white *Helichrysums* can be dyed a brilliant purple or scarlet with

become dusty under the frequent sweepings of carpets, we dip them in cold water; their petals close entirely, but soon open again fresh and bright. We dip the Grasses also, to cleanse them, else they will acquire a dingy hue.

Many persons like crystallized Grasses. These are easily made by dissolving 1 lb. of alum in 1 quart of boiling water, suspending the Grasses just over the steam—not to touch the water—and as it cools, the crystals gather. Grasses need not be dyed before they are

crystallized. A few of them mingled with the green Grasses and brilliant-hued flowers, light up well.

Ferns are much sought after for floral decorations. Their feathery plumes, pinnated leaves, and graceful forms are ever beautiful. They differ from the Grasses, for those gathered late in the autumn retain their colours better than the fresh Ferns of June. The sap has hardened in their leaves. We have gathered them late in November, when they were surrounded by snow, and they have kept green all winter. The running Fern is a lovely decoration for walls and pictures. Its flowers add much to its grace and beauty, but it fades quickly, and by Christmas but a faint green remains. Dip them in "Judson's Green Dye" (following the directions given on the bottle for dyeing ribbons), and you will keep their lovely colour. After they have been thoroughly pressed in heavy books, then dye them, spread on paper to dry in the shade, and then press again. Thus treated, they will last for years. Maidenhair, the most graceful of our Ferns, soon loses its colour; but dyed, it is an addition to every collection of Grasses or Ferns.

Parsley Fern is very beautiful; its soft, feathery leaves are always sought after. These, if gathered late in the autumn, will retain their colour much better. The male Fern, with its stiff stems, if well pressed, looks beautiful. We mingle it with the many-coloured leaves of autumn, or we pin it to the wall-paper, around pictures, or over lace or muslin curtains, and its effects are charming.

The branches of the Sumach, gathered soon after the frost has appeared, or even

before, press perfectly, and keep their colours finely. If varnished with map-varnish they never fade. Branches of this tree, interspersed with the Ferns, are very ornamental. We have made exceedingly pretty crosses from its leaves, sewing each one separately over the other on a pasteboard cross. Anchors and stars can also be made of its lance-shaped leaves. Thus suspended over engravings or curtains, they are very ornamental, and are easily dusted—an essential in the eyes of a good housewife.

Bunches of dyed Mosses are to be purchased of all seedsmen in the cities; we dwellers in villages cannot avail ourselves of them if we would; but with a little care and taste they can be made even prettier than those exposed for sale.

Gather the Mosses, pick out all the *debris*, cleanse from dirt, and dry in the sun; then dip into "Judson's Dye," spread on papers to dry by fire or sunlight. We gathered last year a very finely-fibred Moss, dyed it a lovely green, and saved some of the original colour to mingle its brown hues with it. Then we took the "hoops" from an old skirt, tied them together, and on the circlet tied wreaths, which city friends said "surpassed those displayed at the shops."

We must gather up the rich store of beauties which Nature has garnered for us. By so doing we rob stern winter of half its terrors. Summer's Grasses, Ferns, and flowers adorn our mantelpieces, tables, and walls; coal bids defiance to "King Frost." What care we for ice and snow? Secure from their attacks, we thank the bounteous Giver for all His mercies and blessings, and for the green "things of the earth."—*Dora*.



# THE COUNTRY GENTLEMAN'S MAGAZINE

A BOOK FOR THE COUNTRY HOUSE

OCTOBER

## *THE SUPPLY OF HORSES.*

THE Blue Book, containing the evidence of the witnesses examined before the Lords' Committee on Horses, extends to no fewer than 350 pages. Thirty-nine witnesses were examined during a period extending from the 10th of March to the 16th of June, and the result may be best summed up in the concluding paragraph of the Report, in which the Committee trust that by "the collection of evidence and by the attention they have called to the subject, they have contributed somewhat to the objects for which they were appointed."

At the outset evidence upon the alleged scarcity of horses was taken up by the noble inquisitors, and the military authorities who were under examination, for the most part concurred in the view that the number of animals in the country had considerably diminished, although they mostly conceded a point which is perhaps of greater importance—that as regards quality our equine supply had not shewn any palpable deterioration. It was merely a question of price, the witnesses said. The horses were as good as ever, but they were dearer, and there were not so many of them. Mr Edmund Tattersall should know something of the matter, and his evidence is therefore worth hearing. He said :—

"Judging from all the information that I have

received from gentlemen whose opinions I get, there is a great scarcity of a good class of horses bred. I could mention different districts in which I have information from gentlemen who live there—for example, Mr Thomas Drake, Mr Challoner Smith, and Mr Villebois. They all agree upon this point—that where there were fifty good horses bred in their districts twenty years since, you cannot find five of the same sort of horse bred now. Mr Challoner Smith speaks of a district round Abingdon, where he has lived all his life."

Admiral Rous could not say that there were as many horses bred in this country as formerly. "With the price of beef and mutton, it will not pay to breed horses," he says, "but you can get as many as you want from the Continent."

As respects the reasons assigned for this falling off, and the remedies suggested for the scarcity, one of the witnesses, Mr East, made the following statement :—

"Chairman.—Do you attribute this rise in the prices only to the general rise in the price of other commodities?—I think that although it has paid the farmer very well to breed horses at the price that he has had, the price that he gets now does not really pay him ; there are very few that breed ; they have found other things pay them much better.

"Duke of Cambridge.—Why should farmers find it less profitable now than they did before?—Because the other produce pays them much better ; both beef and mutton pay them much better now than they did before, and the farmers are getting into larger farms, and consequently are more engrossed in othe

business. Men who kept several horses before rarely kept more than just one or two now.

"Chairman.—Then, do you think that the number of farmers who breed horses has actually diminished?—Yes.

"In spite of the great increase in the demand?—Yes; a farmer cannot breed now; he has not got the materials to breed from; the foreigners have been for years buying all our best mares, consequently what he does breed he breeds from a bad mare instead of a good one; he has sold the best mare, and that has gone to Germany or Russia. They have been gradually taken away for years, and now they have drained the country so much that the farmer cannot breed, because he has not got the mare to breed from."

Mr East adds that "breeding on a large scale cannot now be carried on profitably." Another witness, Mr Phillips, is surprised to hear that "except during the last French war there have never been above 5,000 horses sent away from this country." It is not the foreign Governments who compete with us, but the foreign dealers. They are not limited as to price, and they buy for all purposes, military and trade. Naturally, too, they prefer mares, because these can be sold afterwards for stud purposes. When asked as to his knowledge of the export of horses to Russia, Mr Phillips's answer is worthy of note:—

"The export of horses to Russia has been nothing in my time; but in years to come we shall have all to go to Russia for horses, for I believe it is the only country in Europe that has good horses. I know that some of our dealers have gone over now to Russia to try to buy horses, and the French dealers are going there too."

That our farmers cannot now be got to breed horses to the extent they used is Mr Edward Greene's opinion, and on these grounds:—

"I think that the price of bullocks and sheep has acted very much upon the farmer in preventing his breeding horses; at five or three years old he makes £18 or £20 of a bullock, and he is not asked any questions as to whether it has action, or has a spavin, or whether it is a whistler, and he sells it right out; and that has led him to breed bullocks and sheep instead of horses.

"What class of men did breed principally in Norfolk and Suffolk?—The farmers breed; a man

farming a large farm would have two or three mares. Then there is another great difficulty about breeding riding horses, which, perhaps, I had better turn my attention to first. Supposing a farmer begins breeding with three mares, if he is successful, before he can turn them into money at anything like a marketable price, he will have from ten to twelve animals. There will be the mares with the foals by their sides and those of the three previous years, one, two, and three year old animals, and they take a great deal of room, unless he has a quantity of poor land; and I think that now, with the advance in the price of labour, there is a good deal of poor land that would pay better for colts than it would even for bullocks, because a colt, after he is a year old, if well fed the first year, which I think is a *sine qua non*, is really better not to be too highly fed; he is less likely to throw out ringbones, and spavins, and splints, and those kinds of things. Therefore, I think that, now that the price of horses is so much better, that kind of land will be used more for breeding purposes than it has been of late. Then he gets ten or twelve animals on to his farm, and they are a nuisance to him; unless he has a large tract of pasture, he does not know what to do with his colts. They gnaw his grass and his trees, and are very troublesome to him, particularly in winter. He must have a yard specially for them; and, unless they fetch a good price, he will not put up with the inconvenience and the discomfort of having a number of young animals running about his farm."

Colonel Maude tells us that he considers in "Cumberland, Westmoreland, and Lancashire there are more horses bred now than were bred twenty years ago." He admits there is a difficulty in buying the big horses, the Cleveland bays, used in the Royal carriages, but he attributes this to the fact that smaller and lighter carriages being used now than was the case formerly, a lighter class of horse is required. But he says—

"I think there are more horses in this country than there ever were before. I think that there is a tremendous demand for horses—an increasing demand. There is an immense goods traffic on all the railways, and light carts and waggons, and so on are used greatly in excess of what they ever were before. The farmers in some districts are not breeding to the extent that they used to do, but I do not know what you can do beyond giving a little reward in the shape of prizes to the farmers who breed; that would be a little stimulant, perhaps, to the breeder."

In the concluding sentence is embodied the almost universal opinion of all the wit-



nesses as to the means whereby horse breeding and rearing may once again be established on the old footing throughout the country—premiums given by all the agricultural shows, local as well as general, not only for sires, but also for their produce.

That the good to be done by agricultural shows, and an increase in the prize-money offered, is becoming gradually recognized, is learnt from Mr Thomas Parrington, Secretary to the Yorkshire Agricultural Society. That there are not as many good horses bred in Yorkshire as formerly, Mr Parrington admits, but he is confident that the quality of what are there is as good as ever, if not better:—

“I think the quality is wonderfully good. I was out with the Holderness hounds myself not a fortnight ago, and I counted 200 well-mounted horsemen in the field, and I did not count them all. I asked the question what was an ordinary field 30 years ago, and they told me from 20 to 30.”

The present system of warranties and of dealers' licences is a crying evil in the eyes of all, professional and amateur alike. Every one has to pay the licence now. “What do you mean by every one?” asks the Marquis of Lansdowne of Mr Phillips:—

“If you were to buy a horse in the country and sell it again, either at a profit or at a loss, in a week you would be liable to the horse-dealer's licence.

“Have people have called upon to pay the horse-dealer's licence under these circumstances within your knowledge?—Yes. There was a case of a pig-jobber who was summoned, and I believe was convicted. He went on to the Wolds to buy some pigs, and he brought a pony; he brought it home and sold it at 10s. profit, and he was fined £12, and had to pay the horse-dealers' licence.”

Mr Lumley Hodgson, of Easingwold, in the North Riding, described by one of the witnesses as “one of the highest authorities in Yorkshire,” puts in as evidence to the same effect a letter from a friend, who says:—

“I think you know how I was used last year by the revenue officers about the horse-dealers' licence. They write to me week after week insisting I should pay the duty, knowing perfectly well that I was not a horse-dealer; I told them that I should do nothing of the kind, but this Government system is become such

a nuisance that we farmers hardly dare sell a horse to each other, expecting to be surcharged for horse-dealing. Now I don't like being hauled up before a magistrate as if you were a thief; I think I shall give it up altogether. My neighbour could have had £30 profit for a horse last week, but only having had him for a month, he declined entirely on account of the horse-dealing licence.”

And with regard to the warranty system the same witness is equally outspoken:—

“If a dealer bought a farmer's horse, and he did get it sold for a profit, he applied to the farmer, with an excuse that it was lame, and therefore he had to return him, trusting the farmer would give him £6 or £10 sooner than have his horse back, or have a lawsuit; it was not so easy to run up and look into the truth formerly as now.

“But surely if a farmer sells a horse to a dealer, and the dealer does not like him, and the dealer sends back some excuse, do you mean that he would not have him examined, or would he send him back anyway?—I mean that the farmer, sooner than stand the trial and the waste of his money in law, would rather return the dealer so much money than take the horse back.

“Could not the farmer in the first instance either decline to warrant the horse or insist upon the horse being examined before the dealer bought him?—The dealer would not buy him unless the farmer did warrant him.

“Could not the farmer say to the dealer, ‘I will not warrant that horse, but you can have him examined by the veterinary surgeon’?—The dealer would not buy him without a written warranty.

“He would not be satisfied with the veterinary surgeon's examination?—No.

“Why would he not?—Because, when they could get a written warranty, they would not take the veterinary surgeon's opinion.

“Are you speaking of first-class dealers?—Yes.”

The following are Mr Hodgson's remedies for the existing state of things, this scarcity which “has been increasing generally ever since he can recollect”:—

“The farmers to breed, graze, and sell horses like other stock, without being subject to the dealers' licence; buy three-year old mounts for the cavalry, instead of four, because it does not pay the farmers to keep them until four years old; do away with the Queen's Plates; and give prizes at agricultural shows for good stallions; or Government to purchase good sound stallions and send them in the breeding districts to serve mares at a low price.”

The following is extracted from the Report of the Select Committee :—

RETURN shewing the number of racehorses and horses of other descriptions charged to duty in Great Britain, and the amount of duty charged for the years 1831, 1841, and 1851, and for each subsequent year to December 31, 1872 :—

Year.	Number of Racehorses charged to Duty.	Number of Horses other than Racehorses charged to Duty.	Total Number of Horses charged to Duty.	Total Amount of Duty charged.
1831 ...	961 ...	338,343 ...	339,304 ...	417,857
1841 ...	1076 ...	314,779 ...	315,855 ...	417,799
1851 ...	1390 ...	311,113 ...	312,503 ...	373,204
1852 ...	1281 ...	312,451 ...	313,732 ...	373,415
1853 ...	1391 ...	318,125 ...	319,516 ...	366,487
1854 (a) ...	1416 ...	473,738 ...	475,154 ...	341,050
1855 ...	1541 ...	497,096 ...	498,637 ...	340,559
1856 ...	1421 ...	514,318 ...	515,739 ...	353,329
1857 ...	1357 ...	525,000 ...	526,357 ...	360,478
1858 ...	1499 ...	536,170 ...	537,669 ...	367,877
1859 ...	1601 ...	547,891 ...	549,492 ...	375,935
1860 ...	1622 ...	561,274 ...	562,896 ...	384,524
1861 ...	1807 ...	571,189 ...	572,996 ...	391,598
1862 ...	1668 ...	577,515 ...	579,183 ...	394,818
1863 ...	1893 ...	593,067 ...	594,960 ...	406,043
1864 ...	2012 ...	612,929 ...	614,941 ...	419,740
1865 ...	2188 ...	631,071 ...	633,259 ...	432,758
1866 ...	2309 ...	651,710 ...	654,019 ...	447,012
1867 ...	2406 ...	664,367 ...	666,773 ...	455,988
1868 ...	2532 ...	673,740 ...	676,272 ...	462,838
1869 ...	2473 ...	677,875 ...	680,348 ...	465,997
1870 (b) ...	2387 ...	840,847 ...	843,234 ...	450,635
1871 ...	2473 ...	844,971 ...	847,444 ...	453,131
1872 ...	2310 ...	857,048 ...	859,358 ...	458,844

NUMBER OF HORSE-DEALERS CHARGED TO DUTY FOR THE ABOVE YEARS.

1831.....1037	1857.....1062	1865.....1129
1841..... 956	1858.....1078	1866.....1204
1851..... 833	1859.....1084	1867.....1256
1852..... 860	1860.....1115	1868.....1306
1853..... 898	1861.....1103	1869.....1247
1854..... 955	1862.....1050	1870.....1220
1855..... 983	1863.....1061	1871.....1280
1856.....1011	1864.....1083	1872.....1534

(a) Prior to 1854 small farmers, clergymen, and bailiffs, &c., not being possessed of an annual income of £100, and keeping only one horse, were exempt from the tax. By the Act of 1853 these persons were subjected to a tax of 10s. 6d. There were 114,806 horses included under this head in 1854; for the purposes of comparison, therefore, that number must be added to the figures of former years.

(b) Horses kept by job and post masters and stage and hackney-carriage proprietors are not included in the numbers returned prior to 1870. The number of such horses at the time of the change of the law in 1869 was estimated at 75,000; that number, therefore, for the purposes of comparison, must be added to the figures of former years.

An account shewing the number of horses imported into and exported from the United Kingdom in the years 1831, 1841, and 1851, and in each year subsequent to the year 1851 :—

Year.	Imported.	Exported.	Year.	Imported.	Exported.
1831...	1063 ...	718	1861...	1595 ...	2960
1841 ..	339 ...	4538	1862...	1978 ...	4318
1851...	3443 ...	1526	1863...	1441 ...	5204
1852...	3179 ...	2485	1864...	1357 ...	4664
1853...	6819 ...	1902	1865...	1332 ...	4400
1854...	6063 ...	2346	1866...	1646 ...	4069
1855...	2432 ...	3616	1867...	1468 ...	4136
1856...	2979 ...	1711	1868...	1575 ...	4091
1857...	2807 ...	1574	1869...	1849 ...	2210
1858...	3458 ...	2072	1870...	2387 ...	7202
1859...	2130 ...	4417	1871...	3448 ...	7172
1860...	1761 ...	3199	1872...	12618 ...	3383

A Return shewing the number of horses imported in the year 1872, with the countries from which imported :—

Russia .....	11	Spain .....	4
Sweden .....	273	Egypt .....	1
Norway .....	493	Bombay.....	2
Denmark.....	2634	Bengal .....	2
Germany.....	269	United States .....	3
Holland .....	1330	Brazil.....	1
Belgium .....	1681		
France .....	5912	Total .....	12,618
Portugal .....	2		

HORSE-BREEDING IN FRANCE.

It is of course impossible at so short a notice to give anything beyond a very rough sketch of the present position of this country with regard to its supply of horses.

These animals threaten to become so scarce (especially for the saddle) that a Committee has just been formed to make inquiries into, and report upon this subject; as yet, it has only had time to enter upon preliminaries.

Large numbers of horses were bought by the French Government in England during the late war, and the year which followed it;



this, as well as the fact that almost all other European nations are bidding in the English market, must undoubtedly have caused a rise in prices, of which I can foresee no diminution as long as we are thus drained for the whole world.

The Germans have lately been getting many mares out of France through the medium of Belgian dealers, especially from Normandy, where is the best breed.

During the year 1870, both stallions and brood mares were removed to places of safety (many of the most valuable to England), so that little or nothing could be done in the way of breeding for that season.

At the end of the war, the departments of France which had been occupied or "requisitioned" by the enemy were so drained, that the Government was obliged to distribute among the farmers, for agricultural work, all the draught horses that could be spared by the artillery and train.

The same course was pursued with regard to several omnibus companies; and a batch of horses was imported from Hungary for the "fiacre traffic."

In spite of every encouragement, the supply has been diminishing in Algeria, because the natives (as they take to more peaceable habits) find the breeding of mules much more profitable, either for their own use or the public market. High-priced horses, fit for carriage work, are often sent over from Normandy to England and Ireland, where they are kept some months, well fed and broken to harness, and then sold as natives of those countries.

Last autumn the haras of the South of France received a reinforcement of stallions from Syria, which are let out, and make tours of the country for covering at very low prices. This is the system pursued at all the Government haras; they no longer keep any mares.

It is, of course, impossible to foresee what the Committee will recommend; but I know it is the opinion of some of the members that the purchases made by France since the summer of 1870 cannot have affected the English market.

They say that many animals bought for our autumn manoeuvres last year came from this country. In their opinion the large purchases being made for Germany must keep up the rise in prices here and in England.

Number of horses exported from France to Great Britain in 1870-71-72:—

	Geldings.	Mares.	Colts and Fillies.
1870 ...	305 .....	132 .....	326
1871 ...	251 .....	156 .....	1117
1872 ...	2790 .....	1377 .....	2110

Horses imported from Great Britain to France in same years:—

	Geldings.	Mares.	Colts and Fillies.
1870 ...	4040 .....	1333 .....	629
1871 ...	4303 .....	1325 .....	1800
1872 ...	650 .....	100 .....	1690

The following encouragements are held out to landed proprietors and others to breed a good class of horses:—

Fifteen hundred stallions are kept by the State, which cover mares for inhabitants around their stations at very low prices.

Stallions of private individuals approved of by the Administration des Haras are exempt from all tax. Those, on the contrary, which are not approved of pay 400*fr.* per annum.

The Administration des Haras distribute yearly in prizes among the population which keep horses about 1,200,000*fr.*, principally to the owners of good brood mares.

The State, as well as a private Société Hippique for the encouragement of breeding, gives prizes at the important race meetings throughout France. The Society in question also gives prizes at horse shows.

Encouragement offered by the State and by private societies to the breeding of horses in France:—

HARAS SUPPORTED BY THE STATE.

	Personnel.	Francs.
Six inspectors general ... ..		49,500
Subordinate officials and veterinary surgeons		225,900
Stablemen (with rank of sergeant) .....		388,900
Miscellaneous .....		20,000

684,300



## Matériel.

Clothing and rations of men, forage, repairs to buildings, utensils, &c., shoeing, saddlery, medical and veterinary stores .....	1,421,800
Travelling expenses (90,000f.) of inspectors, men, and horses .....	1,803,000
*Purchase of stallions (950,000f.) .....	
Prizes and subventions to stallions, brood mares, and colts of private individuals .....	
	3,909,100

## RACES.

Stakes given by the Government .....	221,000
Stakes given by Conseils Generaux and municipalities .....	600,000
	821,000
Stakes given by private societies .....	572,000
	1,393,000

## RECAPITULATION.

Government Haras .....	3,909,100
Stakes at races given by the State ..	821,000
Stakes at races given by private societies ...	572,000

Total annually, francs.....5,302,100

\* Item for purchase of stallions exceptionally heavy this year to make up the vacancies caused by the war.

JAMES CONOLLY, Colonel, Military Attaché.

## HORSE-BREEDING IN PRUSSIA.

The last published statistics on the subject of the numbers of horses in the kingdom of Prussia date from the year 1871, but only give the results of the census of 1867.

According to these, on the 6375 square miles (the Prussian square mile is 21.16 English) of the kingdom of Prussia, including the newly acquired provinces and Hohenzollern, with 23,971,337 inhabitants, there were 2,313,817 horses, including mules and donkeys.

Of these, 381,891 were under three years old, namely, born in 1865, 131,180; in 1866, 134,026; in 1867, 116,685.

There were employed in agricultural pursuits, 1,606,142 horses. Heavy draught horses, 830,671; other horses, 160,311.

There were 8817 stallions for breeding purposes, 73,589 brood mares, and but 747 mules and 9060 donkeys.

Taking the numbers on the square mile, we obtain the following result:—

In Prussia, 477; in Schleswig Holstein, 473; Province of Saxony, 387; in Posen, 371; Silesia, 356; Brandenburg and Westphalia, 340; Pomerania, 331; Hanover, 305; Rhine Provinces, 298; and Hesse, 251. The low average of Hanover is to be accounted for by the great extent of moorland in that province, but the district of Aurich has as large a number of horses to the square mile as Prussia itself.

The numbers of stallions and of brood mares are both probably incorrect. There are a further number of stallions, belonging to peasant proprietors, which are not returned as breeding stallions, and a still larger number of mares employed on farm work which bring a foal nearly every year.

The heavy draught horses are principally to be found at the centres of industry in the Rhine Provinces, in Saxony, Silesia, and Brandenburg, including Berlin, in Westphalia, and in Hesse Nassau.

The means taken by the Prussian Government to encourage horse-breeding are as follows:—

I. The establishment of three principal breeding studs, intended, in the first instance, for the supply of the royal stables with horses, but, since their establishment, further devoted to the production of covering stallions for the country studs.

The first stud established in Prussia was that at Trakehnen, in East Prussia, by Frederick William I., in the year 1732. Originally intended solely for the supply of horses for the royal stables, this stud has exercised an important influence on horse-breeding in general, not only as the model from which the organization of the latter establishments has been derived, but as the source of much valuable material. A second royal stud was established in 1788, by Frederick William II., at Neustadt, on the Dosse, in the Mark Brandenburg, and on the junction of the Duchy of Saxony with Prussia, in 1815; a third, that at Graditz, near Torgan, was added to the royal horse-breeding establishments.

II. The establishments of eleven country studs (a twelfth is now being organized) as depots for covering stallions:—

The country studs (Landgestute) are depots of



covering stallions, principally recruited from the three above-mentioned royal studs, further, by the purchase by the State of suitable stallions, especially in Germany, as an encouragement to private breeders. There are at present eleven of these studs with a total establishment of 1740 stallions. A twelfth is about to be organized in Pomerania, which is the only province without one; Prussia has two. Their position, and the number of stallions in each are as follows:—

1. In Lithuania. There are in fact, three; all branches of the main establishment, namely, Trakehnen, where is also the royal stud, Gudwallen, and Insterburg, with a combined establishment of 300 stallions.

2. In West Prussia. At Marienwerder with 105 stallions.

3. In Brandenburg. At Lindenau, near Neustadt a-D; with 160 stallions.

4. In the province of Saxony. At Dohlen, with 80 stallions.

5. In Silesia. At Leubus, with 160 stallions.

6. In Posen. At Ziske, with 165 stallions. In connexion with this is a small breeding stud for Percherons, which is intended to supply the other breeding studs with stallions of this race.

7. In Westphalia. At Warrendorf, with 75 stallions.

8. On the Rhine. At Wickrath, with 50 stallions.

9. In Hanover. At Celle, with 220 stallions.

10. In Hesse Nassau. At Dilienburg, with 110 stallions.

11. In Schleswig Holstein. At Rou, with 45 stallions. This is a new establishment, and it is intended that the number of stallions shall be increased to 60.

From these studs the stallions are distributed at the proper season, generally in February, in small detachments of from two to six horses each, under charge of servants from the Government establishments. The choice of the places is entirely at the discretion of the Director of the District Stud, and the horses are quartered on country proprietors, who take an interest in horse-breeding, and who are therefore willing to assist in the object desired. The fee for each mare varies from one to six thalers (3s. to 18s.), according to the quality of the stallions. An exception to this is found in the Hanoverian and Hessian studs, where the fee is invariably one thaler, but on the birth of the foal the owner of the mare has to pay a foal fee of from two to four thalers (6s. to 12s.), according to the quality of the sire.

III. Giving prizes to qualified stallions, kept by private persons, to good brood mares and foals.

The sum granted annually in aid of prizes for good

stallions in private hands, for good brood mares and produce is 12,550 thalers, or £1882, 10s. The results are satisfactory as to the effect produced thereby, in encouraging the class of peasant horse-breeders.

IV. Granting loans, bearing no interest, to private associations, for the purchase of stallions.

There are two modes in which the Government assists private associations—the one by granting loans, repayable by instalments in from four to six years, without interest, for the purchase of stallions by associations; the other, when an association is permitted to take a stallion from one of the Government establishments, paying the price fixed in the same manner as above. The loans granted under this head may be taken as varying from 1000 thalers to 1500 thalers, £150 to £225 sterling. The associations are bound to shew that they are in possession of a certain proportion of brood mares to each stallion, and to engage further that the stallions shall be put to these mares. The care of the stallions devolves on the association, under Government superintendence, and neglect of the stipulated conditions as to care, use of the stallion, and as to covering, involves forfeiture of the privilege of paying by instalments.

V. State assistance, in addition to the stakes, at race meetings:—

The sum set apart for subsidizing race meetings amounts to 51,000 thalers or £7650 sterling. Further than this, stakes won by horses from the State studs, after deduction of the outlay for entries and jockeys' fees, are again given in the following year for public competition, nor are racehorses belonging to the State allowed to enter for the stakes.

VI. Assistance in the shape of money, granted to parishes for the maintenance of pasture lands for young horses:—

The sum granted in aid of the maintenance of grazing grounds for foals is but small, only amounting to 1000 thalers, or £150 yearly. As regards private enterprise, it may with truth be said that its results are very inferior to those produced by the exertions of the Government. It is, indeed, only in the provinces of Prussia and Silesia that private horse-breeding attains any considerable dimensions.

Not only is the improvement of horse-breeding looked on as one of the special duties of the Government of the country, but also as forming one of the measures for the defence of the country, and for its emancipation from foreign control.

BEAUCHAMP WALKER, Major-General,  
Military Attaché.



## HORSE-BREEDING IN AUSTRIA AND HUNGARY.

The breeding of horses is largely and systematically encouraged by the Governments of Austria and of Hungary, each for itself. The arrangements in each country are under the control of the ministers of agriculture.

In Austria there are two, and in Hungary there are three, Government studs, and Hungary is about to add a fourth, in Transylvania. The object of these studs, most of which have been in existence since the latter part of the last century, is to acclimatize foreign breeds, and to raise mares for the service of the studs themselves, and stallions to stand at the Government stallion depots sufficient in number to supply the wants of the country generally. At each of these studs stand ten to twenty stallions of different races, Arab, English thorough or half-bred, Norman and Lipiza (descended from the old Spanish stock bred in the Imperial studs). The number of mares in each stud varies from 200 to 400; a few of these are English thoroughbreds, as at Kisber, in Hungary, where thoroughbred stock is raised, but the majority are half-bred English, Arab, or Norman mares, bred on one side or the other for some generations in the country. The studs have undergone many vicissitudes of management during their existence, and at one time the races were much mixed up together. At present every endeavour is made to keep the races distinct, and to send the largest proportions of each to those parts of the country where they are found by experience to do best. The produce of these studs is weeded out, and the animals not considered fit for breeding from are sold by auction; of the best the mares are apportioned to the studs themselves, and the stallions are sent to the depots from whence they travel the country in the season and serve the country mares on payment of a small fee of 2s. to 10s. The Government does not retain any lien upon the produce thus got, which remains the exclusive property of the

owner of the mare. The following figures will help to give an idea of the extent of the above aids to breeding. By a recent census the number of horses to Hungary was 2,158,000, and in the Austrian provinces 1,367,000. The Hungarian Government owns 1786 country stallions, and the Austrians 1600.

It is evident from the above that the studs are not yet able to furnish the annual supply required on such an establishment of stallions as this, and the Government will, in fact, be obliged to buy stallions to supply the deficiency, and probably chiefly abroad.

In Hungary, last year, 1681 stallions covered 58,000 mares, receiving nearly £14,000 for their services.

The superior "nursery" stallions at the studs are allowed to cover mares belonging to private owners at different rates, but much higher than those fixed for the depot stallions; in Hungary, last year, nearly £2000 were received from this service.

The Government seeks to further stimulate the breeding of horses by giving prizes to owners of the best stock; in every country district there are held annual horse shows, at which commissioners specially named attend and award medals and prizes in money for the best mares with foals, and further for yearlings, and for two-year-olds and three-year-olds; about £2000 is devoted to this purpose in the Austrian provinces this year. The Government also subsidizes the owners of covering stallions for each such horse examined and approved of by them for breeding purposes; the animal has to be produced annually, and £10 to £30 is then paid on his account.

I am not aware of any public associations for encouragement of the breed of horses, unless a society recently formed to encourage and reward the owners of well-broken riding horses deserves to be so called. There are a number of private studs in the country, chiefly in the hands of the Emperor, the Archdukes, and the wealthy landowners of Bohemia, Galicia, and Hungary; the better sort of



carriage and riding horses in the country are bred chiefly by the latter. Few peasants own mares sufficiently good to breed good stock, and if they do they have not the sense to feed them well enough to do themselves justice. In this country breeding by private enterprise labours under great difficulties as far as the mass of the people is concerned, for whilst the peasants are wanting in the knowledge and breeding skill of the English farmer,

they have not the advantages he enjoys in climate, and, consequently, cheap keep for his stock; the housing and feeding of young animals must be artificial and expensive in this country compared to England, there being only about three to four months in the year here during which horses can get decent pasture.

J. M. GOODENOUGH, Lieut.-Colonel,  
Military Attaché.

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### *"DAIRY REFORM" AND TYPHOID FEVER.*

FROM the appended communication it will be seen that the Dairy Reform Company, from whose premises the milk which poisoned people in the West End was sent out, express their deep regret that they should have been the unconscious agents for the distribution of disease and death throughout such a large number of households. The precautions which they took to secure a pure and unadulterated article for their customers were, as they explain, all that seemed necessary, but the late fatal epidemic has proved to them in a very melancholy way that they were egregiously mistaken. It is, of course, all very well to express regret, but sorrow will not call back the dead to life, nor make more pleasant the bed of sickness. If the Company had been content with such expressions they would have gained but little sympathy, either from the sufferers or the public at large. But they are not so satisfied. They have determined, and this shews their grief to be sincere, to adopt precautions in future which, in their opinion, so far as human foresight can go, will make it impossible for a like disaster to occur again. They have arranged that every farm from which they draw milk shall be periodically inspected by a London medical man of high authority, and each shall be visited and reported upon once a week by a local medical

officer; that competent veterinary surgeons shall inspect and report upon the health of the animals which supply the milk weekly, and that analytical chemists of well known skill shall report at intervals upon the quality of the lacteal fluid. The employes of the Company are also to be visited weekly by medical men, and all officers have power to visit the premises of the Company at any hour, either night or day, and to at once shut up any dairy where the milk is suspected to be hurtful, either on account of defective sanitary arrangements or disease in the stock. In fact, the Company are doing everything in their power, so far as their lights go, to restore confidence in the minds of the public with regard to an article which is absolutely essential to the preservation of infant life.

With the *Times*, however, we agree that their few words in defence are quite unnecessary, that in fact, instead of tending to do good to their cause they rather injure it. Our contemporary points out that there was a great laxity in allowing "a day and a half" to elapse after the first intimation was made by a medical man that there was "death in the (milk) pot," before they took any action to stay the flow of the poisonous fluid. The Directors ought not to have presumed "that the physicians who appealed to them were under the delusion



that the cows which yielded the milk were fed upon pasture irrigated by sewage ;" and the *Times* adds very emphatically, "it is scarcely conceivable that the physicians intended to refer to sewage-nourished grass as even a possible cause of the epidemic, or that they employed any phraseology which could be capable of such construction." At any rate, says the *Times*, these physicians "pointed to the milk as being, in some way or other, the possible cause of the disease." There were justifiable grounds, the *Times* satirically remarks, for the Directors deciding, "after due deliberation, that the evidence before them was not sufficient to allow them to put in peril the dividends of their shareholders for the sake of a chance of preserving human life ; but the one course for which no shadow of justification can be assigned, was the putting aside of the solemn warning which had reached them 'for a day or a day and a half' as a matter which did not call for serious consideration."

Then with regard to the elaborate precautions which the Company have made, or are making, to insure that from this time henceforth there shall be no weeping and wailing brought about in happy homes through their agency, the *Times* is evidently of opinion that "too many cooks spoil the broth." Our contemporary says, on this part of the subject—

With regard to the future, our correspondent tells us that the securities are to be so manifold that we cannot avoid inquiring to which of them we are to look for safety. Tradition is full of the misfortunes of those who have fallen between two stools ; but the consumer of milk will be liable to fall among a dozen. There is to be a medical officer from London, a local medical man, a veterinary surgeon, an analytical chemist, and the medical officer of health for every district in which a customer resides, or, we suppose, in which a cow grazes. The medical officer of health for the district from which this fever has come has duties which will assist us in estimating the value of his supervision. He is a busy town and country practitioner. His sanitary district measures about 70 miles by 20, and is badly supplied with railroad accommodation. He lives 14 miles from the offending farm. He is the servant of thirteen local sanitary authorities, combined together for the single

purpose of appointing him, and distinct, if not absolutely at grievance, upon every other subject. The Local Government Board has made no arrangements to supply him with the returns of sickness and mortality for his district ; and he was in blissful ignorance of the very existence of typhoid at and around the dairy farm, until the Commission from London picked him up in the course of the inquiry.

The following is the recommendation of the *Times* to the Company, and to their customers, and not to the purchasers from the Dairy Reform Establishment alone, but to all buyers of milk :—

If the Dairy Reform Company wish to satisfy the public, they must place the sanitary supervision of their farms in the hands of some one responsible person, and must cease to incur the risks inseparable from the employment of half-a-dozen. They must protect their customers by carefully avoiding any admixture of the milk of different farms, and must, as a rule, send the milk from a given farm always upon the same circuit. They must not only test their milk when it is fresh, but they must keep samples for twenty-four hours so as to be made acquainted with any tendency to early decomposition. Lastly, they must take care that the drains and sewers of their farms are daily treated with a liberal supply of carbolic acid, which will not only do something to disinfect poisonous excreta, but will also, if it should find access to a well, betray its presence there to the dullest unaided sense. As for the public, there is just one practical lesson to be learnt from the epidemic. Heat is perhaps the best and most universal destroyer of contagion,\* and even typhoid-polluted milk would probably be harmless after it had been boiled.

The advice to the Company is good, but chloralum as a disinfectant might do quite as well as carbolic acid ; and we think if the hints given to the Company were followed by them and other purveyors of milk, the public would not be under the painful necessity of boiling the produce of the cows. The safety secured by boiling, robs the milk of half its flavour. Dire as has been the disaster we live in hope that out of it good will arise both to man and beast. The animals will no longer be allowed to remain in the wretched close ill-drained byres in which they were wont to be kept. Space and ventilation will be secured for them. Under these conditions, with good water and cleanliness observed in relation to milk vessels, we shall hear no more of milk-produced typhoid.



The following is Mr M'Conochie's communication on the subject :—

HOW FAR TYPHOID FEVER IS DUE TO MILK.

There is now, we regret to say, no doubt that a large per-centage of the recent cases of typhoid fever in Marylebone, as well as in some other districts, has been caused by milk supplied by this Company.

Some persons have not yet been able to bring themselves to consider the evidence against the milk as conclusive, and among them are some physicians of great eminence. They say that the evidence, calmly reviewed, is not such as would be considered by a jury sufficient to warrant them in returning a verdict of guilty against a prisoner, and they say, "Why should we have one standard of evidence for the law and another standard of evidence for science?" They also say that nothing has been proved in connexion with the milk which might not be a mere coincidence, and that the coincidences on the other side are even more numerous and stronger. They further say that with the whole of the sewages of Oxford, Reading, and Windsor still flowing into the Thames unpurified above the intake of the water companies, together with all such overflow or soakage of sewage as may escape from the villages and isolated houses in the infected locality, ample cause exists in the water supplied by the Thames Water Companies to account for all the cases of fever which have occurred; while numerous persons have come forward to testify against the foulness of dustbins and the stinking smells from openings into drains in both streets and houses, arising from the deficient supply of water. Furthermore they say that three cases of typhoid are known to have been imported into the Cavendish Square and Grosvenor Square districts within the last three months from Belgium, Munich, and Vienna respectively, and that it is manifest that, the sewers of a district once poisoned, every person crossing a street near a sewer ventilator runs the risk of swallowing sewer

gas charged with typhoid germs. Children being so little above the level of such ventilators, and so frequently running with their mouths open, would incur special danger.

That other causes have been at work besides the milk is certainly a fact, and cases have occurred among some of our customers unquestionably due to these and not to the milk; while many more among the total number, taken as proved against the milk, have occurred in presence of other sufficient causes.

Nevertheless, the Directors felt it to be their painful duty to state publicly that they are convinced that a certain per-centage of the cases—and that, they fear, a very large one—has been traced by Dr Murchison, beyond doubt, to the Company's milk; and we are informed by Professor Corfield that the lad who was ailing on the suspected farm had, in the opinion of the local medical man, an undoubted, through milk, attack of enteric fever.

THE DAIRY REFORM COMPANY.—DISSEMINATION OF DISEASE.

That we should have been the unconscious instrument of spreading disease is painful and humiliating in the extreme. This company has been literally a "dairy reform" company; and whereas, when it was established in 1867, there were only a few honourable dealers in all London who ever thought of selling milk without water, we are glad to think it is now possible to find dealers in many parts of London who sell unadulterated milk; and at the present moment we have at least the satisfaction of knowing that in the searching scrutiny which has been made every medical man has been convinced, not merely of the honesty of our dealings—for that was not called in question—but of the perfection of our management and organization in London for the supply of unadulterated milk.

The Government inquiry still being conducted has shewn us, however, that a greater danger than mere adulteration exists, which



we cannot blame ourselves for not having hitherto guarded against, inasmuch as no one has ever before suggested it, much less pointed out any way in which it could have been prevented.

It is now clear that it is not sufficient that milk should be unadulterated in the commercial sense of the word, but that all persons and things connected with a dairy must be subjected to continuous medical supervision. The poisoned milk came from a farm long in the hands of substantial and respectable people, who have been in the habit of sending milk to London ever since the railway was opened, and whose milk would have come to London whether they had dealt with us or not. The tests which we applied to it, as to all other supplies twice every day, shewed that it was unusually rich, and this had always been so. Consequently, we are able to assert positively that the milk from that particular farm was never adulterated. This we feel it our duty to state in vindication of the rectitude of the recently widowed lady in whose hands the farm now is, and who, while mourning her own bereavement, is distressed beyond measure at having been the innocent means of involving so many families in anxiety and mourning.

#### DIFFICULTY OF EXPLAINING HOW MILK IS POISONED.

When we endeavour to explain the exact *modus operandi* by which the milk was contaminated with the typhoid poison, we encounter some difficulties. Although the well water used for cleansing the dairy utensils was undoubtedly polluted from the piggeries and farmyard, the topography of the place would not make it altogether a certainty that the well had been contaminated with the only matter which is supposed by medical authorities to be the means of conveying typhoid poison; and although, assuming that such matter had got into the water, it would be very easy to account for the contamination of the milk by supposing that two or three ounces of water were left in one or more of

the milk tins after the final rinsing with cold water, yet, as a matter of fact, it is not certain that this was really the means by which the poison was conveyed.

But the moral of all this is, that certain diseases are so insidious that they can only be guarded against by precautions such as have never before been hinted at, much less carried out, in any every-day business. Of course, any defective arrangements analogous to those described by Dr Corfield at the infected farm must be remedied, and everything done which can be done by such remedial measures.

#### PRECAUTIONS FOR THE FUTURE.

The conviction is forced upon us that, in the presence of a single case of any infectious disease on a dairy farm, no precautions at present known to science could ever be relied upon, in the hands of ordinary persons, to prevent the infection of the milk, and that the only method of insuring the wholesomeness of milk is to organize a system of continuous medical, veterinary, and chemical inspection, abrupt stoppage of the supply being the one measure of prevention when any disease or suspicion of disease exists.

Accordingly, we are arranging that every single farm from which we draw any part of our milk supply, besides being periodically inspected from a general sanitary point of view by a medical officer from London, is to be visited at least once a-week throughout the year by a local medical man, who will report to us in writing; that competent veterinary surgeons are also to report weekly upon the health of the cattle; that each of these medical and veterinary officers is to have the power at all times, and at our expense, to stop the supply of milk from any particular farm or animals—on serious cause for suspicion arising—on his own judgment, without any reference to us.

Similarly, all our *employés* in London and their families are to be visited and reported upon weekly, and the medical officer in Lon-



don has received a permanent order of admission by which he can obtain access to any of our premises at all hours, which order of admission contains instructions to all our *employés* implicitly to obey any orders that this gentleman may give, and he has full power to close any of our premises, without notice to us, if ever he sees cause.

As a further precaution, we are arranging with two eminent analytical chemists to periodically analyze our milk. Each of these gentlemen is to be furnished with a similar order of admission to our premises, and also with one for an assistant; and either of these gentlemen, or both, can enter our premises at any hour of the day or night, remain there as long as they please, give any orders that they, as chemists, may think necessary, and take any samples that they think proper.

Finally, we have given orders of admission to the Medical Officers of Health in every district where we have customers.

To say that we regret that a portion of the milk supplied by us should have been the cause of so much suffering would not convey our feelings on the subject, but we trust that these newly-devised precautions—precautions such as have never before been attempted in connexion with the supply of any article of food—will be taken by those who have suffered and by their friends as a proof that whatever may have happened in the past was without our knowledge and in spite of all the great precautions which we even then took, while for the future it would appear to be almost, if not quite, an impossibility that we should ever again meet with a similar disaster.

#### A FEW WORDS IN DEFENCE OF THE COMPANY.

We now, sir, crave permission to say a few words in explanation and in exoneration of our conduct, when the idea was first started that certain of the typhoid cases arose from our milk.

1. When Dr. Whitmore, the District Medical Officer of Health, first communicated with us, comparatively few facts had come to his

knowledge, his mind was by no means made up on the matter, and he was under the impression that we derived the whole or a large part of our supply of milk from a sewage farm.

2. As a matter of fact, we derive and derived no part of our supply from any sewage farm, and, not being in possession of any of the serious facts of the case, we regarded the whole affair as arising from a groundless prejudice against sewage farms, which, in our case, was also based upon the erroneous assumption that our milk came from one.

3. We admit that, viewing the matter in this light, we did not even give it serious consideration for a day or a day and a half; indeed, one of the directors was not even informed of it at first, so entirely was it looked upon as a speculative theory based upon a misapprehension.

4. We were afterwards asked to believe that we were spreading typhoid poison by means of milk which we knew to be unadulterated, and to believe this *prima facie* impossibility, because nine out of eleven, and ultimately, as we were told some days later, thirty-five out of thirty-seven infected houses were supplied with our milk; the one condition common to all the houses but the excepted two was stated to be their milk supply; and the infection could not be ascribed, so it was said, to defective sewage arrangements or to impure water.

5. We know, on the other hand, that whatever disease might attack certain streets was sure to be chiefly or largely prevalent among our customers; that the milk supply was not the only condition common to the houses, for both sewers and water supply were common; that the inhabitants complained that the sewers had been very offensive; that the water supplied was all Thames water, containing its proportion of the sewage of Oxford, Reading, Windsor, &c., and that even if there were no typhoid poison for the moment in such sewage and water, nothing but a house-to-house inspection of the individual cisterns—which it was not pretended had

been made—would have enabled any one to vouch for the purity of the water; that all the persons connected with the milk in both town and country, amounting to upwards of 200, had been in the habit of using the milk, and that, so far as we could ascertain, no case of typhoid or even of suspected typhoid had occurred among them, although we have since found that one of the clerks, then absent on leave, and who, on the 8th inst., wrote to ask for an extension of leave because he had “had the misfortune to overstrain” (*sic*) himself, and who lives in the heart of the infected district, is suffering from a mild attack of typhoid; that the farmer who is now believed to have died of typhoid fever had been certified to the registrar as having died of heart disease; and that there was then, and had been, no other case of sickness on that or any other of the farms.

6. As often happens in a moment of anxiety and pressure, the medical gentlemen who first communicated with us each thought that the facts, in full detail, had been put before us by one of the others. The result was that we remained in ignorance of most of them, and learned them from the columns of the medical journals for the first time, after we had cut off the suspected supply.

7. Strong in the knowledge of the honesty of our dealings, we remained incredulous as to the milk being the cause of any of the cases of typhoid, even after we had cut off the supply from the suspected farm, for we did this on a telegram sent off by Dr Corfield before the Commission had visited the farm, and while they themselves only entertained suspicion.

8. As the best possible proof of our own confidence and belief, one of the Directors, after the receipt of Dr Corfield's first telegram, drank some of the last day's milk that arrived from the infected farm before it was thrown away; and every previous day, according to the practice of the Company, the milk from that farm, as from all the others, had been tasted by the person appointed for that purpose.

9. Had the ascertained facts been placed before us, we would at once have closed all our establishments on suspicion many days previously, for in that case we should have shared the suspicion of the medical men, instead of regarding it as arising from the groundless apprehension about a sewage farm, or (in the apparent absence of any sufficient facts) from panic, or from both combined.



*THE CONTAGIOUS DISEASES (ANIMALS) ACT.*

By Professor McCall, Glasgow.\*

I N the year 1867 I had the honour of being deputed by the then Lord Provost and magistrates to inspect the whole of the cattle sheds within the municipality of Glasgow, and to report upon their structure, condition, situation, and size, in order that licences might be granted to the keepers of these cattle sheds and dairies in conformity with the provisions contained in "The Cattle Sheds in Burghs (Scotland) Act, 1867." Appended to that Report was a tabulated statement shewing the individual losses, &c., sustained by the dairymen of Glasgow, from the prevalence of rinderpest, puerperal fever, contagious pleuro-pneumonia, and foot-and-mouth disease amongst their cattle. Since that document was laid before the Local Authority, I have not submitted any other formal Report; as, however, at the present time considerable diversity of opinion exists in regard to the expediency of the restrictions placed upon the importation and movement of cattle under the Contagious Diseases (Animals) Act, 1869, and the effect which these restrictions have had upon the supply and price of butcher meat, and the suppression of disease in cattle, I have considered it desirable that the Local Authority and the public should be put in possession of the results of the enforcement of the Act within Glasgow, in the hope that more intimate acquaintance with the matter may lead to greater accuracy of judgment and action on this important subject. This desire has been strengthened from the circumstance that I was unable, from indisposition, when cited to appear and give evidence before the Select Committee of the House of Commons, engaged in an inquiry

regarding the operations of the Contagious Diseases (Animals) Act, before which it was my intention to have laid the information supplied in this Report. Professor McCall appends seven tables to his Report, the substance of which is thus condensed:--

Table 1 shews that in the year 1865-66 there were 224 dairy-keepers in Glasgow; that these persons had in the aggregate 1527 cows at the time when the rinderpest or cattle plague broke out; that 416 cows died and were buried; that 347 were slaughtered on account of shewing premonitory symptoms; that £2050, 18s. 4d. was realized from the sale of slaughtered carcasses, but, notwithstanding, the money loss by that single outbreak of disease amounted to £8987, 10s.

Table 2 shews that the average number of dairy-keepers in the city for twelve years prior to 1866 was 224; that the average number of dairy cows in the byres was 1527; that 3759 cows had died from contagious pleuro-pneumonia; that 1594 cows had been slaughtered on account of the disease; that £5929 had been realized from the sale of carcasses, and that the actual money loss was £54,677, or £4556, 8s. 4d. annually.

From the year 1866 till August, 1869, at which latter date the Contagious Diseases (Animals) Act became law, no statistics of disease sufficiently reliable to found upon can be produced; but it may be remarked that for twelve months after the Cattle Plague had been "stamped out," owing to the restrictions, by means of licences, &c., placed on the movement of cattle within and without the city, the death rate was very low, and for several months not a case of contagious pleuro-pneumonia occurred. Gradually, however, with the opening up of markets, and the free and uncontrolled circulation of cattle,

\* Report presented to the Lord Provost and Magistrates of Glasgow.



diseased as well as healthy, which took place in the city during the period my services were dispensed with as Veterinary Inspector of the Cattle Markets and Dairies, contagious pleuro again gained a footing, and without doubt in time would have told its old tale. But the restrictions and surveillance which immediately followed my re-appointment to office, and which, with modifications as needed, have since been kept up, have been sufficient to limit its spread, although not to stamp the disease out.

Table 3 shews that in the year 1869, after the Contagious Diseases (Animals) Act had passed into law, three separate outbreaks of pleuro occurred; that out of 34 cows 25 became attacked, and 9 were killed, 3 died, and 13 recovered.

Table 4 shews that in the year 1870 fifteen outbreaks occurred, embracing 243 cows; that 118 were attacked, 43 killed, 18 died, and 57 recovered.

Table 5 shews that during the year 1871 eight separate outbreaks occurred, involving 99 cows; 50 were attacked, 41 killed, and 9 recovered.

Table 6 shews that during the year 1872 six separate outbreaks occurred, involving 104 cows; that 65 were attacked, 46 were killed, 7 died, and 12 recovered.

Table 7 shews that from the commencement of the Contagious Diseases (Animals) Act, in August, 1869, till 31st December, 1872, a period of time amounting to three years and four months, 240 dairymen had kept on an average 1800 cows; that out of 480 cows located on the premises where pleuro had appeared, 258 were attacked, 139 killed, 28 died, and 91 recovered. Further, that according to a computation on the same principles as forms the basis of Table 2, the value of cattle killed during these three years and four months had been £521, 5s., the value of cattle recovered £341, 5s., the total loss £2169, or as near as possible £650, 14s. per annum, being one-seventh of the annual loss which was sustained in Glasgow for the twelve years which preceded

the passing of the Contagious Diseases (Animals) Act.

#### DANGER ARISING FROM IRISH CATTLE.

With the beneficial results attending the operations of the Act in Glasgow, and the comparatively small amount of inconvenience to which stock proprietors are put in its execution, I could not conscientiously advise the removal of the restrictions. On the contrary, I feel constrained to recommend the application of restrictive measures, to Irish cattle as well as foreign cattle, entering this country, it being a notorious fact that a far larger per-centage of diseased stock is found in Scotland which have come from Ireland than from all foreign countries put together.

The fat stock are almost all sold in the Glasgow Cattle Market, but scarcely any of the store or lean animals find a purchaser in Glasgow, but after resting in the market lairs are railed through the country and sold in fairs in Scotland and England. No restrictions being placed on the movements of these Irish stores, and no provision being made for their lairage and feeding when in Glasgow, other than is to be found within the walls of the fat cattle market, it follows that if contagious diseases exist within the market (and where 70,000 head of cattle, 290,000 head of sheep, and 13,000 pigs are annually exposed and partly housed on such a small extent of ground surface, it cannot be often absent), it is almost certain to be caught up and spread by these animals all along the line of their future transit and destination; and that this is a fact is, I am sorry to say, but too well known.

Before placing restrictions on the movement of cattle imported from Ireland, it would be necessary to erect cattle lairs and sheds in the vicinity of the harbour, and to set these lairs apart for the housing and feeding of stock arriving from that country; and that such a measure would materially tend to limit the spread of contagious disease, and thereby lower the price of butcher meat, I have no hesitation in asserting.



# A FAIR FARMING LEASE.

THE following are the principal points in a lease recently drawn up for Sir Patrick Keith Murray, of Ochtertyre, Perthshire, the rental of whose farms is about £12,000 per annum.

By the 23d clause "the tenant, at the natural expiry or earlier termination of his lease, shall be entitled to compensation from the landlord for unexhausted extraneous manure brought to the farm, purchased and paid for by the tenant, according to certain scales, the actual purchase of such manure being proved by duly authenticated vouchers, and its application by the solemn declaration of the tenant corroborated by such further evidence as the arbiters may see fit to require; and during the last three years of a lease the tenant shall be bound to produce for the inspection of the landlord or his factor, at each term of Whitsunday or Martinmas, if required, the vendor's accounts for all manures and feeding stuffs supplied to the tenant during the previous six months, and he shall also point out the ground to which the manure has been applied, as a condition for receiving compensation for the same."

Before determining on the proportions of compensation to be allowed for unexhausted manures, Sir Patrick consulted various leading agriculturists. Among these considerable differences of opinion prevailed as to the rate of exhaustion of the different manures; but the scale finally adopted is nearly what was recommended by Mr Hope, Fentonbarns. That scale is included in the lease, and by it lime applied to arable land is held to last for ten years; and applied to permanent pasture on grazing farms, to last for twelve years. The following table shews the proportion of original value of lime held to be exhausted in each year, for which a proportionate allowance is made:—

1.

## ON ARABLE LAND.

In 1st year .....	10—55ths	In 6th year .....	5—55ths
2d „ .....	9—55 „	7th „ .....	4—55 „
3d „ .....	8—55 „	8th „ .....	3—55 „
4th „ .....	7—55 „	9th „ .....	2—55 „
5th „ .....	6—55 „	10th „ .....	1—55 „

## ON PERMANENT PASTURE.

In 1st year .....	12—78ths	In 7th year .....	6—78ths
2d „ .....	11—78 „	8th „ .....	5—78 „
3d „ .....	10—78 „	9th „ .....	4—78 „
4th „ .....	9—78 „	10th „ .....	3—78 „
5th „ .....	8—78 „	11th „ .....	2—78 „
6th „ .....	7—78 „	12th „ .....	1—78 „

Horse, cow, and town manure, guano, bones, and coprolites are held to last for four years, and allowance is made for these at the following rate of exhaustion:—

In 1st year .....	4—10ths	In 3d year .....	2—10ths
2d „ .....	3—10 „	4th „ .....	1—10th

Nitrate of soda and sulphate of ammonia are held to be exhausted by the crop to which they are applied, and no compensation is allowed for them when the tenant has his crop sold or valued. For oilcake or any similar substance of equal value, used by the tenant in feeding sheep or cattle on the farm, one-sixth part of the cost of the quantity used during the last three years of the lease is allowed; but no allowance is made for grain in any shape.

If any new manure, not included above, is applied, or the above manures are of unusual quality, better or worse, or applied in exceptional quantity or under exceptional circumstances, the value is to be decided by the arbiters. The value of feeding stuffs of less manurial value than oilcake, grain excepted, is also determined by the arbiters.

The rates of compensation for unexhausted manures do not include the cost of carriage and laying on performed by the tenant, no allowance being made for these. In case, however, of the tenant leaving the farm before the natural termination of the lease, compen-

sation is allowed for carriages of materials for the permanent improvement of the farm, performed by the tenant in terms of the lease, or with the written consent of the landlord. In the event of the tenant ceasing to occupy the farm before the natural expiry of the lease, he receives one of the foregoing portions for each year of the lease which he fails to enjoy. It is conditioned, however, that, under no circumstances, shall the value of carriages, at the time of the performance thereof, be estimated at more than 14 per cent. of the amount paid by the landlord for these permanent improvements at the time of their execution.

Those acquainted with the Lincolnshire tenant custom will observe that the above compensations very much resemble the arrangements which obtain in Lincolnshire. It is to be pointed out, however, that in that county the in-coming tenant pays for the meliorations to the out-going one, whereas, on the Ochertyre property, the compensations are given by the landlord. It is possible, should the system of compensation for these extraneous manures take root in Scotland, it would be more convenient for proprietors to adopt the Lincolnshire principle than the mode followed by Sir P. Keith Murray, of themselves re-imbursing the out-going tenant.

As illustrating the operation of the principles of compensation in the Ochertyre lease, the following imaginary case has been prepared with the approval of the proprietor :

Imaginary Case to Explain the Working of the Compensation Clause in Sir Patrick Keith Murray's Printed Condition of Lease.

A tenant held a 19 years' lease of one of Sir Patrick's farms, commencing at Martinmas, 1870; expiry at Martinmas, 1889. He renounced the lease at Martinmas, 1880, and had claims against the landlord which were settled as undernoted :—

He performed the carriages for enlarging the farmhouse and steading during the first year of his lease. These buildings cost the landlord £1000. The arbiters fixed the original value of the carriages at the highest rate named in the conditions, 14 per cent. on the landlord's outlay, which is £140. There were 18 years of the lease to run after the carriages were performed. £140 was therefore divided into 18 portions of £7, 15s. 6½d. each, and the tenant received one of these por-

tions for each of the 9 years of the lease which he failed to enjoy. £7, 15s. 6½d. multiplied by 9 comes to £69, 19s. 10½d., the sum paid to the tenant.

He applied £100 worth of lime to his arable land in January, 1872. He is held to have exhausted 54-55ths of this value in the 9 years, 1872-1880, and he receives 1-55th of £100, which is £1, 16s. 4½d.

At the same time, January, 1872, he applied £100 worth of lime to his permanent hill pasture, he is held to have exhausted 72-78ths of the value in the 9 years, 1872-1880, and he received 6-78ths of £100 for the value of the lime which would be exhausted in the 10th, 11th, and 12th years after its application; 6-78ths of £100 is £7 13s. 10d.

During the 4 years previous to his leaving the farm he had purchased and applied horse, cow, and town manure, guano, bones, and coprolites. The value of all these added together amounted in each year to—

In 1877.....	£50
„ 1878.....	46
„ 1879.....	30
„ 1880.....	28

He received nothing for the £50 worth applied in 1877, which is all exhausted by Martinmas, 1880. He received 1-10th of £46, that is £4, 12s., for the manure applied in 1878; he received 3-10ths of £30, that is £9, for the manure applied in 1879; he received 6-10ths of £28, that is £16, 16s., for the manure applied in 1880.

He applied some nitrate of soda and sulphate of ammonia to his waygoing crop, but he received nothing for them, as the value of these manures is held to be exhausted by the crop to which they are applied.

He purchased and used oilcake in feeding sheep and cattle on the farm during the years

1878 .....	£50 worth.
1879 .....	65 „
1880 .....	45 „

Total of three years....£160

He received one-sixth part of £160, which is £26 13s. 4d.

He had erected a slated stone turnip shed, which the landlord claimed at valuation. It was valued at £35, which he received. He had erected a wooden hen-house, which neither the landlord nor the in-coming tenant would take over; he therefore pulled it down and sold it for firewood. He had put up some wood and wire fences, which he disposed of by private bargain to the in-coming tenant.

It will be gathered from the foregoing statement that, in addition to other allowances, the tenant on leaving the farm received a sum nearly equal to the average amount paid by him in any one year for horse, cow, and town manure, guano, bones, and coprolites; he



also received a sum equal to half the average amount paid by him in any one year for oilcake.

Sir Patrick deals in his lease with the question of permanent improvements ; and the clause with regard to them is in the following terms :—

“If the tenant shall, at his own cost, erect any buildings or fences on the farm, the landlord shall be entitled, if so disposed, to take such erections at valuation of arbiters, or to decline taking them, and, in the latter case, the tenant shall be entitled to make them over to the in-coming tenant, or to remove them, on condition that he restores the ground, or the other buildings to which they are attached, to their original condition.”

Further, Sir Patrick deals in a summary way with the question of hypothec. Clause 27 of the lease stands thus :—

“The landlord renounces all preferable rights as against other creditors of the tenant, conferred upon him by the Law of Hypothec.”

When a concession of this kind is made, the tenant of course would wish to see the per contra—that is to say, the security which the landlord reserves to himself. We learn that on the Perthshire property the farms at the end of the lease are usually valued by the highest authority obtainable, and no higher rent is taken if they are advertised. The rent is payable six or nine months after entry, instead of twelve or fifteen months, which is the usual allowance given in Perthshire. Sir

Patrick would not have parted with the right of hypothec except on this condition of comparatively early payments of rent. Discount at the rate of five per cent. per annum is allowed to the tenant on the valued rent, when it is brought forward six months at the commencement of a new lease.

In the clause in the Ochtertyre lease with respect to game the landlord reserves power to himself to hunt, shoot, and fish on the lands he lets, “but always so as not to injure the crops or fences.” At the same time he gives to the tenant a concession expressed in the following terms :—

“The tenant shall be entitled by himself, or by one person authorized and named by him in writing, to trap, snare, ferret, and net rabbits and hares, and to shoot crows and wood-pigeons at all times on the whole lands let, and also to ferret and shoot rabbits on his hill pasture, but only between the 10th day of December and the 15th day of April in each year.”

The game clause has been, we learn, granted to all the tenants for some years, and hitherto has worked smoothly. On the Highland portions of the estate the grouse shooting is of value, and is preserved. On Fowlis Easter the shooting is let to the tenants ; and on Fowlis Wester, Strathearn, it is in the hands of the landlord.

## AGRICULTURAL STRIKES AND HOW TO AVOID THEM.

SOME very sensible remarks on the agitation among the agricultural labourers are made in an article which appears in *Colburn's New Monthly Magazine* for the present month. We make the following extracts :—

To reconcile labour with capital is one of the most important problems of the day, and it is one worthy of the best efforts of those who have the true welfare of society at heart. It is one of those questions ever coming to the front, and imperatively requiring to be answered. The consideration of it is, then,

full of interest to every class, and claims the attention of every reflecting mind. The true solution of this great problem must, we think, attract the sympathy of all who own to sentiments of humanity, and are intelligently alive to the best interests of society. The combinations of workmen for the purpose of strikes, and the frequent interruptions to important industries, due to these same combinations, have tended to give the problem a still greater importance ; and thus the general question of strike-unions first claims our attention. No one can deny to

workmen the right of combining merely to protect themselves and to improve their condition, provided only that the means they make use of be just and expedient for themselves and the whole community. But it cannot be allowed that one class has any right to advance its interests by injuring another. Now, this is the means constantly made use of by strike-unions, and therefore we contend they are unworthy of the sympathy of those who have at heart the interests of the whole community. The strike-union, by declaring war between labour and capital, has often interrupted trade, business, and agriculture, and injured the capitalists who exist and thrive by means of those pursuits. While loudly professing to exist and act for the benefit of the working man, the union does him incalculable injury, no less than the whole community. But let us not hesitate to oppose the strike-union as we would oppose an insidious enemy labouring for our country's destruction. Shall we delay to act till the fatal policy of the agitators results in revolution and civil war? When trade becomes slack and workmen are discharged; when agriculture languishes, and proprietors receive a diminished income from the soil, or, it may be, no income at all; when the angry mob assembles together to demand the bread no longer possible to be earned by the sweat of their brow—when all this shall come to pass in consequence of the universal prevalence of strikes, then shall we learn that the interests of all three classes are intimately connected, that no one class can stand alone, or attack another with impunity, but that one depends upon another for social life, health, and well-being.

But, although the strike movement tends to produce these disasters, we trust that means may be found to check the evil in time, that thus the country may be saved from all the calamities of civil strife and insurrection. But if we would check the wave of agitation, it must be by energy and action; passive inaction, allowing things to take their

natural course, will not, in our opinion, suffice to stem the surging flood, which gathers strength as it flows onwards, and threatens to rise still higher each moment. We would ask our readers, if nothing can be done to defeat the aims of the union agitators, and to arrest the further spread of the threatening movement? Although it is true that agricultural unions have sprung into existence in several counties of England during the last year, still, as far as the great bulk of the farm-labourers of the United Kingdom are concerned, the agitation may be regarded as yet only in its infancy. Here, then, we would suggest, is a field for profitable investment; here is an opportunity for those whose interests are imperilled by future strikes which we seriously think should not be lost. After a careful study of the agricultural union movement, we have come to the following conclusions:—1. The aims of the agitators are neither just in themselves, nor beneficial to masters or to men; and they ought therefore to be resolutely opposed. 2. Amid the labourers there existed previously to the agitation—and there still exists independently of it—a considerable amount of latent discontent with their condition. 3. There are real hardships and grievances, possible of alleviation, in the lot and circumstances of the men. 4. In consequence of the latent discontent with their condition, the men have been in many instances an easy prey to the agitators, and have welcomed these with open arms. 5. The two classes above the labourer, viz., the farmers and the landlords, have, to some extent, hitherto overlooked the fact that the welfare of the labourer is the true foundation of their own prosperity; in other words, farmers as a class, and landlords as a class, have been during the past too much inclined to regard their own interest and well-being as a thing apart from the comfort and happiness of the labourer.

But it is most important to our purpose to observe that Mr Edmonds (himself a large tenant-farmer), in the course of a very fair and able paper, admits that the labourer has



at least one grievance—he is unable to provide against sickness and old age. Masters and landlords, by thinking seriously on the case of the labourer, and by studying deeply how best they can remedy such grievances as are real and evident, will, without doubt, take the surest means to solve the labour problem. When these two classes have set themselves to work, more seriously and more generally, to remedy the defects in their duty to the people, then will they be able, with all the more reason and justice, to require the people to do their duty to them. And, in regard to cottage accommodation, while the bad legislation of past years, and the short-sightedness and heartless conduct of individual owners, have both, it seems, contributed to the erection of the wretched dwellings we are most of us acquainted with—now gradually giving way to decent and healthy houses—no one can doubt that something still remains to be done in the way of improvement.

We are disposed to admit that, independently of the strike agitation, the condition of the labourer has considerably improved during the past quarter of a century. That he is still unable to obtain a regular supply of fresh meat for his family, much less to provide for unforeseen misfortunes or old age, is perhaps, in part, to be explained by the fact that he is now better clothed than formerly, and that, other new wants having come into existence along with his improved condition, his extra earnings have gone to supply these wants. Such dire distress as was formerly witnessed in the rural districts has, indeed, been happily unseen by us in the present day. And, doubtless, the cost of labour to the farmer has greatly increased. At the same time, we must also recollect that the whole wealth of the country has immensely developed during the same period, and that farmers and landowners have been sharers in the general prosperity. It would,

then, have been a too shameful fact, had the labourer been deprived of all share of the increasing riches of the community. The spectacle of immense wealth by the side of abject poverty, which the social aspect of England presents to-day, is one well worthy of the attention of capitalists and landed proprietors; and the essence of the matter is simple enough. Is the labourer paid the fair value of his labour? The agitators say he is not; they stir the length and breadth of the land in consequence, and the result is the strike-union. On this subject Mr W. J. Edmonds has given us some valuable facts. After shewing that the position of the labourer has materially improved during the past thirty years, and that his work is not only better paid, but, in addition, lighter and more pleasant, he contrasts the rate of wages in the year 1843 with that of 1871-2. The facts are as follows:—In 1843, the rate of wages in East Gloucestershire averaged, including piece-work, 9s. 6d. per week, and wheat was sold at 6s. per bushel. In the year ending April 1872, the rate had risen on Mr Edmonds' farm to 13s. 6d. per week (10s. for day-work, and 3s. 6d. extra for piece-work), and wheat averaged 6s. 6d. per bushel. This gives a rise of 40 per cent. in wages, but only 8 per cent. in wheat. Against this Mr Edmonds sums up thus:—Sugar and tea are cheaper now than thirty years ago; bacon is about the same; some necessaries are higher in consequence of the action of trades unions; and the high price of meat is merely exceptional, and likely to decline in the course of a year or two. From a review of these facts, we gather that there is a clear gain to the labourer, for the price of meat affects the calculation but little, precisely because he neither was, nor is able to purchase much of it. This last fact is worthy of consideration, for if fresh meat be really a necessity, it is surely a necessity to the labourer.

## PEASANTS AND FORESTERS AT VIENNA.

WE copy the following very interesting article from the Special Correspondent of the *Times*. From the description of the dwellings of the peasants it would appear that in these, what we are pleased to think, semi-barbarous countries, they have much better house accommodation than we supply to our own labourers—a fact scarcely creditable to our assumed advanced civilization:—

Away in the remote north-western corner of the Exhibition grounds lie homesteads and peasant cottages from the remote rural districts; while in forest pavilions you get glimpses at the homely lives of woodcutters and charcoal-burners in the forests which cover so much of the empire. Thanks to the horrible weather, which was so greatly against excursions to the country, very few people ventured so far in the earlier days of the Exhibition, but the number of visitors has steadily increased ever since the Cattle Show, for the way to the cattle sheds lay through the forests and past the mountain cottages. If you turn off past the Ringstrasse at the Aspernbrücke, follow the Landstrasse, cross the Sophienbrücke, and coast the Danube to the south of the Prater, you find yourself at last at the western entrance to the Exhibition, which, by the way, is just on the borders of the really picturesque part of the great park of Vienna. You cross those Heustadl waters which irrigate the trellised fruit gardens of Greece and Döbling, Touraine and the Low Countries; you pass the military barracks and the building yard, and one of those never-failing restaurants, and there you are among the mountaineers who have brought their homes hither for exhibition. For almost every cottage has its tenants, a married couple for the most part, who speak nothing but their country speech, and who wear their country costume. Sitting as they do among home surroundings of

superfine quality, wearing the newest and most picturesque raiment, and holding a perpetual levee of admiring visitors, they do not look particularly homesick. Nay, some of them who are of a musical turn, even play you a *ranz des vaches*, or a "*hoch von Dachstein*" without betraying the smallest sign of suppressed emotion. In the first of the dwellings you come to, a rude Alpine *sennhütte* of rudely-dressed pine trunks, the inmates are too busy dispensing hospitality, at handsome prices; to trouble themselves greatly about things more sentimental. Possibly they may indulge their finer feelings in the calm of the night, if they can spare the time from slumber after counting their gains. There is a flow of beer in place of milk and cream, and a show of casks instead of cows, but otherwise externally and internally the hut is very like those which every tourist has seen by hundreds in the higher pastures of the Bernese Oberland. A good deal more pretentious is the Galician labourer's cottage, next door. Its outer walls are much the same, although the logs are rather more carefully dressed, but within it is plastered and carefully whitewashed. There are more rooms than one, and they are loftier and larger; there are gaily painted cupboards among the furniture, and a portentous stove which tells of winter residence where the winters are severe. There are good beds instead of straw couches, although the mattresses do feel as if they were stuffed with stout twigs; and the walls are gay with gaudy pictures of the Madonna and lady saints. Among the articles of kitchen furniture is a primitive corn mill like the antient Scottish kirk—a round millstone worked by a long wooden lever, and set in a rough frame. The way of securing the door, too, indicates a highly primitive state of society, and seems intended as a protection rather



against the wind than dishonest neighbours. At least, a hole close to the lock dispenses with all necessity for a latch-key; you have only to thrust in your hand and push the bolt back. Over the way from Galicia lies the Vorarlberg, and the specimen of architecture from that prosperous province must either be the residence of a very wealthy person, indeed, or the owner must have launched on a career of extravagance much opposed to the thrifty habits of the Austrian mountaineer. His sitting-room seems rather that of a *petite maitresse*, sick of society, and gone to play the solitary shepherdess for a summer season. There, too, the walls are of wood, but they are lined with beautifully finished panelling. The furniture is of walnut wood and *en suite*; the tables are showily, if not very delicately, inlaid. A walnut clockcase, carved like those of which there are so many in the Exhibition, is fitted into the wall. The great door of a walnut buffet stands open, ostentatiously displaying the services of polished pewter and the gorgeous china on the shelves. The great porcelain stove is of comparatively fine material, while to the figures of the Virgin and the Saints are added portraits of the Emperor and Empress and the members of the Imperial family. That touch, at least, is true to nature, as are the broad wooden settees fixed to the wall in the corner where the inmates really make themselves at home, and the crucifixes hung over all the beds. When I paid my visit, dinner was being cooked in the kitchen over a very complete and compact battery, which looked suspiciously like the latest patent of some enterprising Viennese iron-monger. But the general construction of the house gave one an excellent idea of what it was meant to represent; the gentle slope of the roof with its neat tiles of shingle; the broad galleries which ran along the front under the overhanging eaves, with their carved railings and their panelling in scallop shells; the double windows fitted with glass within and moveable wooden *persiennes* without; the balustrades of the spacious

inner staircase in open woodwork, and the smart brass lock and handles on the outer door. In contrast to the flat roof of this mountain dwelling is the steep pitch of that from the plains of Hungary opposite. But the details of the Hungarian cottage look more genuine. There are broad interstices between the logs in the walls, and on the upper floor these are not stopped at all. A rough shingle fence runs round the little garden; baskets for field labour hang under the penthouse in front, and rude field tools are suspended on the gable. The small living room, with its low roof and heavy beams and rafters, reminds you of the cabin of a Norwegian coaster, built to knock about among the islands in winter gales. You may trace the signs of closer contact with the East in the crimson leaves and the yellow birds which are painted upon everything—chairs, boxes, and pottery. The couple themselves have unmistakable Magyar features, and wear the veritable Magyar holiday costume—the woman in the scarlet boddice and white chemise; her jovial, sun-browned husband in his high waistcoat, with broad metal buttons, and tight light woollen trousers, with rough black embroidery meandering down the seams, while their little child totters about under the weight of a small white hair-cloth cloak, blazing in patterns of scarlet. But though the furniture, so far as it goes, is resplendent, there is not very much of it. Small as is the room, there is space enough for a primitive loom for spinning coarse hempen cloth and for the rough basket cradle which is swung to one of the rafters.

In the cottages from Transylvania, you remark the influence of the Saxon immigration, even although they probably are not inhabited by men of the Saxon race. You enter the yard under one of those penthouse-covered gateways so common all over Germany. The Oriental love of colour is displayed in the patterns in red and blue with which it is roughly inlaid, and the great German stoves within shew brilliant decoration to match.



But some of the agricultural implements are best worth looking at. It is 500 years at least from these you see here to those you have examined in the English and American annexes; yet, perhaps, these same carts and wagons of wood, pinned together by wooden pegs, without a single morsel of metal used even in the tires of the wheels, are better suited to their light sandy soil than anything we can send them. You can easily move the wagon with one hand, yet it is as tough as it is light. The cottages from the Military Frontier dispense with the luxury of chimneys; not so the neighbouring house of the genuine Transylvanian Saxon farmers. It has not the ostentatious finish of that from the Vorarlberg, but it is as comfortable as you would expect to find it. There is no richer or more respectable class among the agriculturists in the Empire than these Transylvanian farmers of Teutonic blood. The distich on the gable, though it jolts rather than trips, is characteristic of a military, agricultural colony.

“Der Kaiser fuhr das Schwert: der bauer fuhr den Pflug,

Wer Allebeid nicht ehrt, ist ganz nicht klug.”

The ground floor is devoted to cellarage and store-houses. The entry to the dwelling is on the first floor, by an outer staircase under a projecting porch; there you find yourself in the kitchen, from which the sitting and sleeping rooms open, otherwise there is nothing remarkable except a wardrobe filled with fete-day costumes, coquettishly trimmed with sheep and fox skins.

If the house from the Vorarlberg taxed one's faith in peasant prosperity, the Russian cottage is ridiculous. As a chalet to stand by the ornamental waters in the Bois de Boulogne, nothing could, in fact, be nicer; probably it might pay Barnum to purchase it for exhibition in the Union, but to send it as a specimen of the class it professes to belong to is simply imposition. There is a wealth of carved woodwork without and within; there are laced curtains, towels, and table-hangings of rare embroidery and spot-

less purity, painted flagree doors and outer shutters. The very sacred pictures, triptichs on golden ground, would be more in their places in the churches of Kief or Moscow, and the only thing one receives as honest is the burnished *samovar*, or tea kettle, which stands on the stove.

It is refreshing to get away from this pretty bit of unreality into the fresh show from the forest. Austria, of course, attaches extreme importance to a department which is one of the chief sources of her wealth, and the books to illustrate the forest administration in her different provinces and the elaborate statistics of her system must be extremely valuable to those who are interested in the growth of timber in English possessions. But every one who cares for woodland scenery or wild nature must enjoy a visit to these outlying pavilions. They stand round a space covered with giant trunks of trees, and great slices and cross cuts, sent by way of samples of the grain of the largest growths. Within, the pavilions shew every kind of timber at every age, with all the possible uses to which it can be turned, and all the articles of local manufacture. Where these are too bulky for exhibition, they are modelled. Among the boughs which deck the walls are all the birds of the forest, and on the ground below them all the beasts. But what is most interesting to casual visitors are the representations of the different forest industries, with the work going forward in all its stages. We saw something of the kind in Prince Schwarzenberg's collection, but here it is necessarily more complete and on a much more extensive scale. In a size 1-24th that of life you see the narrow raft, 600 feet in length, winding its way down a mountain stream, and being lowered, by means of a weir, past a rapid and a waterfall. Each separate length of trees is lashed together by bark cables, so that if necessary they may be cast off partially or altogether. Thus each joint becomes perfectly flexible, and the interminable mass of timber glides along like a water serpent. You learn how simply and



easily heavy trees may be moved to the water-side—four men harnessed to a lorry, running on iron rails down a gentle incline, can drag five enormous firs. You get a glimpse at some of their dangers in the *steinfang*, or strong palisades, for catching the stones which come bounding down the sides of the mountains and sweep some of the more exposed places. In the highest of the Styrian forests the wood is lowered by means of wheels running upon wire cables which are passed from tree to tree and rock to rock, and carried zigzagging down the steep sides of the mountains, bridging the abysses which would otherwise interfere with the transport. Then you have the charcoal burning. There is a model camp lying among those limestone mountains in a spot where a number of

valleys chance to concentrate themselves. Down each of these there leads a *holzriese*, or wood slide, made of roughly-dressed tree trunks, except one where the logs are sent down by a streamlet, which is dammed back for the purpose. You look into the interior of the burner's dwelling; the straw spread on the floor for a bed, and no other furniture but a stove and a bench. You see their magazines for storing the charcoal, and the piles of wood arranged for burning in the different stages of progress. Altogether, the stroll carries you away into an atmosphere entirely different from that you have been breathing among the arts and industries, and without stirring beyond the Prater you may easily lose yourself in the depths of the Austrian forests.

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### THE ARCH GIVING WAY.

WE admire friendliness to whomsoever it is exhibited, or in whatever form it may present itself. It may be shewn in the regions of the *ton*, where an old acquaintance offers to one who has been rather "going downhill," and generally shirked by his fellows, a glass of wine; or in the purlieus of London, where a costermonger unblushingly declares that he will "stick to a pal," although that "pal" has been deserted by all, save emissaries of the law. Therefore we admire the *Daily News* for sticking up for its protégé (we do not use the word as recently defined by Mr Gladstone)—Mr Joseph Arch. The *Daily News* unwisely made him a hero, and we are much afraid that he has now become to that journal a kind of Mrs Shelley's *Frankenstein*. It mildly remonstrated on Wednesday with the monster of its own creation. In this wise: "Mr Joseph Arch has been rather unwisely, we think, allowing his cause to be mixed up with that of the Home Rule Agitation. . . . In this country Mr

Arch and his fellow-workmen seem to have had the good sense, or good fortune, to keep their cause distinct from any political, or at all events from any partizan organization. [Mark the numerous qualifications in this sentence.] . . . But in Ireland, things took a different form. Mr Arch and his companions seem to have made themselves or found themselves partizans of the Home Rule Association," and so on.

This giant in intellect, this apostle of the rights of millions of down-trodden agricultural serfs, this glorified and self-glorifying martyr, Arch, this worker with his hands in the fields, this stern and immaculate hero of the *Daily News's* largest type, from that journal's own account, in similar printing material, has, under the blarney of Mr Butt, tumbled down as suddenly from his high estate, as did the Philistine god, Dagon, before the symbol of the Supreme. It is very pitiful to have to read this in the *Daily News* about their wondrous idol, Arch. "It is not any dis-

paragement of the homely common sense of our countryman, Mr Arch, to say that he could hardly be expected to encounter in a game of policy so accomplished an expert. Mr Butt seems from the first to have 'annexed' Mr Arch—to have adopted him as a subordinate in the business of Home Rule Association." The *Daily News* next endeavours to "whitewash" Arch for his connexion with Home Rule, by dragging in numerous stories and similes to shew how others beside him have been duped, evidently, while doing so, making faces inwardly as wry as any exhibited by haters of physic when potions are peremptory.

Our contemporary dwells much upon the good that *might* have accrued from the visit of the Messrs Arch and Ward to Ireland, had the Home Rulers not got hold of them. "Mr Arch, the representative of the agricultural labourer, would be regarded as entitled to authority and respect by people in England who are not at all likely to defer to Mr Arch, the associate of the Irish Home Rule agitation. Perhaps, after all, they (Mr Butt and Mr Smyth) would have done better by not trying to annex Mr Arch. We are satisfied that they have marred his power to serve the cause of the Irish peasant by striving to enlist him in the ranks of the Home Rule Association."

We are really sorry that the *Daily News* should have been reduced to such apologetic straits in consequence of the lapse of the apostle of the toilers in the field. For ourselves, we have no cause of regret about the persuasion of A by B. All along, any one

without spectacles might have seen that Arch was a man of profound conceit—one that, as stupidly as a gudgeon, would get hooked with a bait much less dexterously thrown than that by Mr Butt, viz., that Mr Arch's speech was "beautiful, magnificent in its diction, and noble in its intellect. I only wish that I heard such a speech in the House of Commons—and perhaps I may yet hear the same speaker make one there as good." Mr Arch was beautifully caught. But what else can we really expect from a man who is carried off his legs by such fulsome flattery as this? Mr Arch is going over to America and Canada to report on their capabilities for agricultural emigrants. There are speculators in these countries more seductively eloquent than even Mr Butt, so that Mr Arch, so easily led into "Home Rule," is sure to fall into their meshes, and will be certain to recommend those who ought to stay at home to try the pleasures of life abroad. From his first appearance at Willis's Rooms we somehow or another—we know not the why nor the wherefore—associated Mr Arch with the fable of the frog and the bull. Since then he has been carrying out the allegory very successfully, and we have little doubt that the *denouement* will be similar to the one we read of in *Æsop*. While admiring the kindliness of the *Daily News* towards him, and condoling with it on Mr Arch's *faux pas*, for reasons given before, we should advise all industrious agricultural labourers in this country to think twice before breaking up their homes on the strength of any report that Mr Arch may transmit across the Atlantic.



## Agricultural Implements and Machines.

### TRIAL OF THE JOHNSTON HARVESTER.

THE *Hexham Courant* describes a trial of this celebrated self-delivery American harvester, which took place in a field of oats belonging to Mr T. P. Dods, Anick Grange, in Northumberland, on Tuesday, August 19.

The crop experimented on was one well qualified to test the qualities of the reaper, being rather rear in regard to ripeness, mostly very stout in the straw, and standing thickly on the ground, with here and there lighter patches, and about an acre towards the centre completely broken down about 6 inches above the root, the heads matted and tangled together in admirable confusion, with not a few hare-tracks, where the grain was trodden flat on the soil. In every case, however, the machine, being a "tilting" one, shewed its capacity for cutting, at any desired height, from 1 to 8 inches. The stubble in every case was admirably level, and cleanly cut—the straw in the hare-tracks being cut off at the same level as the rest—and the sheaves placed in a clean, regular, and compact order, and regulated, as to size, at the will of the driver seated on the implement. The latter desideratum is accomplished by an ingenious and simple plan. A short iron treadle projects upon the foot-board, and on being pressed down by the toe, throws one, two, or more of the "rakes" out of gear, at the will of the operator, so that instead of sweeping the delivery board, they merely lay the corn upon the cutting knives, rise up and pass over it, leaving the second, third, (and so on) to clear off the sheaf. These rakes are five in number, and their construction, arrangement, and mode of

acting, form one of the most ingenious combinations in the machine. They can be detached at pleasure, a great advantage when the machine is *in transitu* from place to place, and refitted in five minutes, when wanted. The five arms to which these rakes are affixed are inserted into a disc wheel revolving horizontally, and are held in position by a simple slot or bolt, each slot "keying" that previously inserted till the last is in place, and this is secured by a small perpendicular bolt and nut screwed up by the forefinger and thumb. They, as well as the rake blades, are then adjusted to the level or inclination of the delivering board, according to the nature of the ground, by an exceedingly simple piece of mechanism, and are at once ready for action. The mechanism by which the rakes were raised and lowered at the proper time, is also extremely simple and clever, and received warm commendation from those present. The manner of tilting the machine is equally simple and effective. The handle of a lever, with a catch-handle of a spring attached—similar to those of the reversing mechanism of a locomotive engine—are placed at the hand of the driver, who by grasping the two handles—that of the spring lifting the tongue out of a ratch—can raise or lower the cutting apparatus to any elevation desired, under 18 inches, so as to escape obstacles (stones, &c.,) in traversing the field, or moving from one field to another. The cutting knives are also readily thrown out of gear. The only point worthy of notice at present, with respect to this part of the machine, is that the knives are worked by a horizontal wheel,

instead of the vertical one, common in most reapers. Considerable numbers of practical agriculturists and mechanics, and a large sprinkling of amateurs, visited the field during the trial, and every one, almost without exception, expressed himself perfectly satisfied. One important feature, which tells much in favour of the perfection of the Johnston harvester, we have omitted to notice, and this is, that it went round and round the corn, cutting on all sides without the slightest

reference to the direction of its inclination, and leaving a clear path behind for the next turn, so that cutting once begun can be carried on continuously to the finish, leaving the binders to follow at leisure. The manufacturers were represented by Mr Thomas Orwin, of Newcastle, a member of the firm; and Mr Sinclair Davison, district agent, the machine being manipulated by Mr Orville Cooley, travelling agent, and Mr Jas. Orwin, Newcastle.



## The Farm.

### POTATOES—OLD AND NEW KINDS.

IT is well known to our readers that a large assortment of the best kinds of potatoes from America are being gradually introduced into our own country. Some of these sorts have better resisted the malady vaguely known as "disease," than any of which we were previously possessed. The following article, therefore, from an American paper, the *Journal of the Farm*, cannot fail to be read with interest:—

The white Mercer potato originated from seed balls planted in Mercer county, Pa., in 1812, sixty years ago, by a Mr Wilky, and it soon afterwards became, and for many years remained, and it still is, the standard of potato excellence, not only in Pennsylvania, but in almost, if not all of our States where it has been tried. But it has, for a good many years past, been so much inclined to the potato-rot, and yielded so poorly to the acre, that we have been compelled to discard our old favourite, and try some of the various new varieties of potatoes, to wit, the early Goodrich, Harrison, Garnet Chili, Gleason, &c., that originated with the Rev. Chauncery E. Goodrich, of Utica, State of New York; the peachblow, that originated in New Jersey; the buckeye, of Ohio; the Michigan white sprout, of Michigan; the Prince Albert, obtained from England; and the early rose, Bresee's prolific, king of the earlies, and peerless, that originated with Alfred Bresee, of the State of Vermont, and also various other new kinds, whose names I need not specify.

And the result of our potato experience with these new sorts seems to be as follows:—The early Goodrich ripens quite early, and yields largely, but it is so variable in quality,

being sometimes dry and mealy, and at other times again so watery and tough, that but few people in our parts now raise it. The Harrison is even more watery and tough, so that the early Goodrich and the Gleason are for the same reason but little better than the Harrison, while the Garnet Chili, a red-skinned and white-fleshed potato, yields well, and has a solid and good deal drier flesh than the early Goodrich, Harrison, or Gleason, but is, after all, only a third-rate or at best only a second-rate potato in point of quality. The early Goodrich, Harrison, and Gleason are white or whitish skinned and yellowish-white fleshed potatoes.

The buckeye of Ohio, is a round white-skinned and white-fleshed potato, of a better quality than the Garnet Chili, but a poor yielder, and like the garnet, often so worm-eaten and disfigured in its skin and flesh when dug up in the fall, as to greatly injure marketing.

The peachblow is a dry and nice mealy potato, that is nearly equal in quality to our famous old Mercer. In fact it has taken its place, and now, as for years past, commands the very highest price in our city market. But the peachblow must be planted very early to ensure a crop, and then ripens so late in the season, and has such deep-sunken eyes, that many persons have declined growing it.

The Prince Albert has a tendency to become watery at one end of its tubers, on some soils, but is, when grown on favourable ground, not only a great yielder, but a large, smooth, beautiful, shallow-eyed potato, that cooks very dry and mealy, and nearly, if not fully, equal in quality to the white Mercer. The

Michigan white sprout is a pretty fair potato in point of form, quality, and productiveness, but is at times subject to be badly worm-eaten.

The early rose, that a few years ago made such a great stir all over our land, makes a fine and very early ripening potato, but becomes, from some cause or other, too watery, tough, and heavy afterwards to make a good fall and winter potato, and whether Bresee's prolific, king of the earlies, and peerless, will prove any better, are questions yet to be decided. And the same remark applies to those still *newer* kinds, the extra early Vermont, excelsior, and Compton's surprise potatoes that are now attracting attention among potato growers.

Among our *old* varieties of the potato, the white Mercer has very generally been allowed to stand at the head of the list. But we had some other old sorts that were in the opinion of many people fully equal to the Mercer in point of quality, and better as regards productiveness. Thus, for example, the old white pinkeye, so called from its pink-coloured eyes and white skin, was a first-class potato in every way, and has no superior yet among all our greatly cracked-up new varieties. So the old blue kidney, a long, smooth, flat, kidney-shaped, light bluish-skinned, and light yellowish fleshed potato was nearly, if not

quite, as good as the pinkeye. So the old black potato, so called from the blackish colour of its thick, rough skin, was quite a round potato, as round as a boy's ball, that yielded finely and boiled up very dry and mealy, and had a darkish white flesh of excellent flavour. So the old long John was long, very smooth, and bright red-skinned potato, that covered a flesh of *greater whiteness* than any other potato I have ever seen. It was a poor potato for fall use, but improved so much in its texture in after months, that it formed a very superior potato for late winter and spring use, and what made it still the more desirable was the fact that it was a sure grower, and yielded very large crops of very solid, long-keeping tubers. And we had some other old varieties of potato that were nearly, if not quite, as good as these just named.

Among the many new varieties of the potato that have become more or less popular of late years, are those named the climax, early Mohawk, early six weeks, monitor, orono, Shaker's fancy, and Shaker's russet. And I wish some person, who is familiar with them, would send you descriptions of them, stating the colour of their skin and flesh, shape, size, time of ripening, shallowness and deepness of their eyes, their quality and flavour, &c., for the benefit of your readers.



## SEWAGE GRASS AND FEVERED MILK.

IT will startle a good many people to hear from so high an authority as Dr Alfred Smee, that typhoid fever arising from the use of milk is owing to the cows being fed upon sewage grass. Vegetables, we are told, the growth of which is promoted by that fertilizer, are also deleterious to health. Dr Smee grounds his denunciation of sewage grass, so far as milk is concerned, on the strength of a tiny experiment he made with his own cows. He says :—

During this spring my son directed, without my knowledge, that the cows should be fed with a small proportion of sewage grass, when, without knowing the reason, the butter was so offensive we could not bear it on the table; the other members of the family were loud in their complaints, and the neighbours for a long time came for no more butter. Upon inquiry I heard of the use of sewage grass, which was immediately ordered to be discontinued, when the cream, milk, and butter resumed their former excellence. This seemed to me too seriously important to pass unnoticed, so I desired my son to repeat the experiment suddenly, without any notice, when the same results again occurred. The cows like the sewage grass, and the milk is slightly increased in quantity by its use. The milk has a slightly rancid odour when about twenty-four hours old, and has this quality a day or two after the cows are fed with the grass. The butter becomes bad about a day or two after it is made, and no care in its preparation can avert the rancidity.

With every respect for Dr Smee, we must differ from him about the unhealthiness of the produce of cows fed upon sewage grass. For a quarter of a century and more the greater proportion of the dairy stock of Edinburgh have so been fed, and no indication of typhoid that we are aware of has ever appeared from their milk, neither has the butter manufactured from the cream thereof been in the slightest degree tainted, and there has been no more difficulty in keeping it perfectly fresh than there was in so keeping that made from the kine grazing on the fine pasture lands of Ayrshire and Lanarkshire. Well do we

recollect, when the rinderpest decimated the dairies of the northern metropolis, of the citizens complaining that the quality of the milk and butter that had to be brought in from the country districts was not nearly equal to that which the sewage-grass fed cows produced, and they longed for the time when the town dairies would again be filled. Such sweeping assertions as Dr Smee's should not be made from such a narrow basis as that upon which he stands. If the grass and roots grown by the excreta of towns are so injurious, then a new difficulty arises in our web of difficulties, as to how to dispose of it.

We had written so far when a cloud of eminent witnesses appeared in the *Times* to testify to the fact that sewage grass is by no means the poisonous substance which Dr Smee hastily described it. First in order comes Dr Williams, Medical Superintendent of the Sussex Lunatic Asylum, whose experience of sewage farming ranges over twelve years. In the asylum there are 1000 souls, whose refuse amounts to an average of 35,000 gallons per day, and this sewage is employed to irrigate 8 acres of land, divided into three portions. For two years Italian ryegrass is grown on each portion, and in the third year roots, the cropping being so managed that there are always two portions of the land under ryegrass and the third under roots.

The ryegrass grows most luxuriantly, often reaching 4 feet high, and is cut four or five times during the year. From the beginning of April to the end of October about thirty cows and twelve horses are fed almost entirely on it. No ill effect has ever been experienced. On the contrary, our cream is so rich and good that we are able to clot it after the manner of the Devonshire farmers, and I never knew the butter to be bad.

In fact, says Dr Williams, the experience of Dr Smee is "diametrically opposed to ours in the dairy."

After Dr Williams comes Mr Hope, than whom no man living has a better knowledge of the theoretical worth of sewage, and who has proved so satisfactorily, by magnificent crops, its practical value. He commences by asking the following pertinent questions of Dr Smee :—

1. How long had the grass been cut previously to the cows getting it?
2. How had it been conveyed from the sewage farm to Mr Smee's cows, and how had it been kept or stored during the whole interval after cutting?
3. How is the land on which it is produced laid out for the reception of the sewage?
4. Is it laid out in the way which I have heard Mr Smee describe, so that the sewage stands in ponds, stagnating on the surface of the ground, several inches deep, for many hours, and even days, together?
5. When had the grass been sewaged last previously to its being cut?

He adds that there is nothing at all surprising that grass grown under the conditions the queries indicate, and possibly kept for many hours before being eaten by the cows, should produce the results described by Dr Smee. Mr Hope also exposes the weakness in Dr Smee's armour when he says that before he arrived at the conclusion he has promulgated, he should have proved that there was typhoid fever at Croydon, that the germs of fever could be conveyed into and kept in a state of fertility in the grass, that they could so be kept in the stomach of the cow, and similarly conveyed into the milk and from thence into the human system. Dr Smee offered to place a cow at the disposal of the editor of the *Times*

for the purpose of experiment. Mr Hope makes a far more liberal offer. He says :—

I have great pleasure in offering to place at either your disposal or that of Mr Smee my entire sewage farm at Romford, for the purpose of any and every experiment which he can possibly devise. He can taste vegetables of all kinds grown by the sewage. He can taste cheeses made with the milk, and already some months old, but not yet ripe. He may analyze the grass, examine it with a microscope, analyze and examine the milk, watch and examine all the processes going on at the farm—butter-making and cheese-making—and he may make comparative experiments to ascertain the length of time that the milk, butter, cheese, and any other produce on the farm will keep as compared with his own produce; and, finally, he may do, as Doctor Spencer Cobbold did, slaughter one, or, if he likes, several of the animals, and dissect them, and microscopically examine them, and analyze them, and eat them.

Several other writers follow in the same strain. Dr W. Elgar Buck, Officer of Health to the combined districts of Leicestershire, undertakes to send Dr Smee some exceedingly fine vegetables grown by sewage, about which he thinks Dr Smee cannot say that they "are affected for the worse." Mr Latham, Past President of the Society of Engineers, who has had many years' experience, maintains that "both the quality of the milk and butter will surpass that produced from unirrigated lands." May other writers hold the same views! Indeed, all do, who know anything about the subjects. We are exceedingly glad to see such a hideous hydra as that raised by Dr Smee so promptly and effectually knocked upon the head.



*PRIZE FARMS IN CHESHIRE.*

BESIDES the large stock show annually held in connexion with the Manchester and Liverpool Agricultural Society, the farm competition which takes place within the district visited by the Association, excites much keen interest. The following are the awards for the best cultivated farms, laying down land to grass, draining, and other improvements, of the Cheshire district where the exhibition of the Society takes place this year:—

Premium to owners and occupiers of not less than 150 acres in the best state of cultivation. Three claimants. Awarded to T. W. Tatton, Esq., Wythenshawe Hall, Northenden.

This farm contains 160 acres, consisting of a light loam of a very fair depth, in a flat level district, at about 100 feet above sea level. This year the cropping is as follows:—73 acres pasture, 52 acres meadow, 6 acres meadow covered with dung water, 6 acres wheat after potatoes, &c., 6 acres oats, 6 acres beans, 10 acres potatoes, 1 acre turnips, carrots, &c., and 5 acres mangold wurzel. The rotation of crops is of no settled character. The greater portion of the old pasture land, principally park land, is very good. There are some portions rather inferior in herbage, but not of any great extent. Some portions have been marled, which is producing very good results. First year's clover exceedingly good, the herbage being of the most superior character. Third year's ley (mown), one field very good in condition and herbage; another field is not so good, in fact, it is about the worst feature of the farm. Fourth year's ley good, has been marled. Wheat (bearded white) good strong crop; some persacario, crowsfoot, and other annual weeds. Oats (Tartarian) are an exceedingly strong crop. Beans good and generally clean; some thistles near to headlands, which

are not cultivated. Potatoes fair crop, and land fair for cleanliness, but not particularly well worked. Headlands not cultivated, owing to rabbits. Turnips and mangolds very good and clean; land well worked. The stock kept consists of 5 farm horses, 1 bull, 15 dairy cows, 7 heifers and stirks, 8 steers, 62 sheep, 19 pigs, including 1 boar and 8 breeding sows, and 13 rearing calves—total, 130. The farm horses are fed upon 1 bushel of oats each per week, or the same value in beans and Indian corn, with hay and straw chaff mixed with pulped turnips or mangolds and a little hay in the rack. Cattle in winter get 4 lb. of linseed cake and 4 lb. of bean flour each per day, with hay, straw, and bean chaff mixed with pulped turnips or mangolds. In summer out at grass they get 2 lb. of linseed cake and 2 lb. of bean flour each per day. Calves get 1 to 2 lb. of linseed cake and bean flour each per day all the year round. Sheep get a little cake and corn during winter and spring. Pigs out at grass all summer; in winter fed on kitchen refuse with skim milk, Indian corn, and pea flour. The whole of the land has been drained with 2 inch to 12 inch pipes, from 4 feet to 6 feet deep. All manure made on the farm is used on the grass land. Fifteen tons Peruvian guano and 5 tons boiled bones are annually purchased and applied on clover, grass land, and green crops. The homestead is well kept; fences, gates, and posts good. The horned stock is of a high-class character, from the best blood. Pigs exceedingly good, of the Salford breed. The whole is under superior and energetic management, and very satisfactory balance-sheets were produced, which would allow ample remuneration for the capital invested. The other competitors were in a very commendable condition. One, a very extensive farm upon a peaty soil, had some very superior arable crops, but the very

extensive range of old pasture (park land) had not that superiority of herbage which characterizes the winning farm. Inspected 2d August 1873.

Premium 4.—To tenants and occupiers of not less than 100 acres and under 150. Four claimants. Awarded to Mr Thomas Hurst, Tabley, Knutsford.

This farm is an old stager in successful competition, although for the last few years it has not been in a position to be placed in the first rank. That achievement has now been accomplished to a remarkable degree. Its position in a fine agricultural neighbourhood, and in close proximity to a good turnpike road, with a homestead exact in its condition, well arranged and substantially-erected buildings, garden in the highest state of cultivation and scrupulously clean; its extensive range of well matured fences, kept in the very best of condition, with well arranged and not over numerous enclosures, gates and posts in character, at once stamps it, even at a cursory glance, at that pinnacle of success which its master mind of a cultivator has so energetically and diligently pursued. The soil is principally a fine sandy loam, and some portions peaty. This year the cropping is as follows:—63½ acres pasture, 16½ acres meadow, 16¼ acres wheat, after potatoes, &c.; 19½ acres oats and 8 acres beans, 4 acres potatoes, 3 acres carrots, turnips, &c.; 3 acres mangold wurzel, and 1¼ acre orchard garden, &c.; total, 135 acres. The customary rotation of crops is—1st, oats; 2d, potatoes, &c.; 3d, wheat, sown down with seeds for four years. First year's clover part in particularly good condition, and part very fair, mown once and afterwards depastured with sheep. All has been manured with Proctor and Rylands' manure. Second year's ley pasture, mown twice in 1872, very fair, but nothing particular. Fourth year's ley pasture very good, both in condition and herbage. Wheat very fair, seeding deficient for clover root. Oats (Friezland cuts), very good crop and clean. Beans, very strong crop, and

particularly well podded. Land clean, sown on flat 22 inches apart, and drilled up. Potatoes, turnips, and mangolds very good, and land clean. Headlands well worked and sown with common turnips. Turnip exceedingly vigorous, manured with about 15 tons of farm-yard manure, and 3 cwt. of guano per acre. The whole of this field of green crop is in exceedingly good condition. Kitchen garden in good cultivation, well cropped, and in clean condition. Fruit particularly well attended to, and fruit trees in a very healthy and thriving condition. The live stock consists of 4 farm horses, 1 colt, 15 dairy cows, 8 heifers and stirks, 184 sheep and lambs, 7 pigs, and 3 rearing calves; total, 222—which, in addition to hay and pasture, are fed upon oats, beans, Indian corn, turnips, mangold, and cake. The milk stock is of a good profitable cross breed; the sheep of an original Scotch breed, bred in Ireland; pigs, a very nice breed, as a cross with the Berkshire and also pure-bred Essex. About 300 tons of manure are annually made upon the farm, which is applied to green crops, mangold, potatoes, and beans. Upwards of 10 tons of Proctor and Rylands' manure and 20 tons of lime are also annually purchased and applied to grass land, &c. The whole of the farm has been drained by the landlord. Since being awarded the premium in 1863, the tenant has put up a permanent wire fence against the wood, as a protection from rabbits, 400 yards in length, where a quick fence could not be grown, and has eradicated 500 yards of old fence, and filled up the ditches, &c., landlord finding materials. The yard buildings and premises in general are in very neat order, the walks and roads being asphalted. The stackyard is in neat order, and provided with six cast iron corn stack stands, and with an excellent hayshade on oak posts with slated roof. The buildings are well cared for and well purified by part gas tar and part lime-washing. The implements consist of a fair collection of the modern improvements, well housed, and kept in good condition.



Premium to tenants and occupiers of not less than 50 acres and under 100. Two claimants. Awarded to Mr Joseph Whalley, Moss Nook, Rainford.

This farm contains  $84\frac{1}{2}$  acres, the soil being a peaty loam on deep moss. This year the cropping is as follows:— $9\frac{1}{4}$  acres pasture;  $15\frac{1}{2}$  acres meadow;  $11\frac{1}{2}$  acres wheat after potatoes, &c.;  $11\frac{3}{4}$  acres oats; 11 acres barley;  $\frac{1}{2}$  acre peas;  $\frac{1}{2}$  acre vetches, &c.; 21 acres potatoes;  $1\frac{1}{2}$  acre turnips; 1 acre mangold wurzel; and 1 acre orchard, garden, &c. The customary rotation of crops is, 1st, oats; 2d, root crop; 3d, corn sown down with clover for two years. Pasture very good herbage, and in very good condition, considering the nature of the soil. First year's clover exceedingly good; the second cutting being very luxuriant. Wheat after potatoes (seeded) very nice crop, but not particularly heavy; in this respect, however, considering the nature of the soil, it is perhaps as good. There is an exceedingly good clover root; in fact, its luxuriance is unparalleled in this tour of inspection. Oats after leys, fair crop, but not particularly heavy, land clean. Barley, after potatoes, very fair crop, and land clean. Potatoes very good, clean crop of various sorts, consisting of Patterson's Falaroes, Walker's Early, &c., on peaty loam. The homestead is nothing particular, being merely of a common-place character, including buildings, yards, garden, &c. The stock kept consists of four farm horses, one colt, nine dairy cows and one bull, three heifers, fifteen pigs, and six rearing calves. In summer, the horses are fed upon cut straw, oats, bran, hay, and straw; in winter, potatoes, turnips, and mangolds instead of oats; the cows upon cut straw, malt dust, steamed grains, bran, hay, grass, vetches, turnips, and mangolds. In addition to the above stock there is also another description of live stock kept upon the farm, surpassing in number considerably what has been enumerated. Upon one headland was observed more than 200 young pheasants in a comparatively tame state, at

times enjoying themselves in the immediate vicinity of their cooped-up mothers of the common fowl species, at other times making excursions into the adjacent crops, passing and re-passing through extremely good fences, but of which they are thus destroying the bottom parts. This they appear to do with very great coolness, notwithstanding the presence of strangers, and altogether seem to consider themselves quite in a legitimate position. About 200 tons of farm-yard manure are annually produced upon the farm, which is applied to root crops. There is also purchased 170 tons of animal manure, applied to root crops;  $6\frac{1}{2}$  tons of beef manure, mixed in compost, applied to grass; and 1 ton of potass salts, applied to potatoes. The farm has all been remodelled; the internal and road-side fences are all new, of various ages, and are all well kept and clean; the only bad feature is the damage at the bottom by game. The occupation roads have been straightened, and put in good order. The tenant has marled about 35 acres during the last six years. He has filled up six pitsteads, gaining thereby about 2 acres of land, and costing nearly £100. The total quantity of land gained by filling up pitsteads and eradicating old fences, is from 4 to 5 acres. Inspected 20th August 1873.

Premium to the tenant and occupier of not less than 100 acres, who shall have drained the greatest quantity in proportion to the size of his farm. One claimant. Mr Thos. Warburton, Bewsey Farm, Warrington.

Farm contains 185 acres, of which 13 acres have been drained this season, and 4 acres during the previous year. 10,312 yards have been laid with 2 and 3 inch pipes. Part of the mains are laid with 6 inch, part with  $\bar{4}$  inch, and part with 3 inch pipes, with 80 yards of 6 inch and 48 yards of 9 inch pipes for fetching up fall. The soil is a strong loam and clay. Main drains laid from 3 feet 6 inches to 4 feet deep, and branch drains 3 feet to 3 feet 6 inches deep. All work and material have been done at expense of tenant, including carting of pipes, an average of 3

miles. Cost, £6, 5s. 2d. per acre, exclusive of carting. The wing drains are from 14 feet to 15 feet distant. The work has been exceedingly well executed, and the result was very palpable at the time of inspection during operations. Inspected 18th February 1873.

In connexion with this premium for draining, this is one claim which, according to its peculiarity, cannot directly come in contact with the ordinary features of drainage. The merits attached to it do not consist exactly of the extraordinary amount of work done, although this has been considerable, but rather of the difficulties to be overcome in its accomplishment. The work consists of the drainage or rather re-drainage of a deep moss. The land had previously been in cultivation, but was so completely saturated with water, especially during the late season, as to become comparatively worthless, and especially previous to the commencement and during the recent operations, was in such a state that the very attempt, let alone the carrying out, is worthy of commendation. By these operations this morass, as we may term it, has become a really first-class piece of land, and is carrying this season crops of potatoes, turnips, oats, and barley, of a very creditable character, the potatoes especially, considering that the operations of drainage were not completed before the last week in April, are such that it would require a considerable amount of energy to get them in that position to produce the present appearances. The corn crops have been considerably deteriorated by the depredations of game, the land being closely adjacent to a very extensive covert for such. In detail the operations consist of draining 22 acres of land at 11 yards distant.

The common drains are from 5 feet 6 inches to 6 feet deep, and the main drains from 6 feet to 6 feet 6 inches deep. The obligation attached to the claimant in this instance is to provide the tiles so far as haulage goes, to the drain sides, fill up the drains, and pay a per-centage per annum upon the landlord's outlay in providing the tiles and cutting the drains. The cartage of the tiles is about 4 miles. However, in conducting the operations, these tiles could not be carted upon the land owing to its very soft and saturated nature, but had to be hand-carried from the field sides, and distributed as circumstances might dictate. Part of the drains are laid with two tiers of horse-shoe tiles, some with 4-inch and the remainder with 3-inch pipes, and the whole is conveyed into an old 6-inch pipe drain, which discharges into a large ditch a short distance from the field. The cartage of tiles has been a very heavy item in expenditure, and the hand carrying and levelling has also been very expensive. The landlord's expenditure amounts to very near from £5 to £6 per acre, and considering that about 140 tons of material have to be carted upwards of 4 miles, and to be hand-carried over a space of nearly 22 acres, the tenant's expenditure cannot be less than from £3 to £4 per acre. Under the circumstances we think that the merits of this case are very well worthy of being recognized by the Society, and as its features are such as are not often portrayed, that if those merits could be in any way shewn by the Society by the award of a special silver cup or medal, the inspectors would cordially endorse such a recognition. Silver medal awarded to Mr Henry Nield, of the Grange Farm, Worsley.



## A CHICAGO PORK-PACKING HOUSE.

A CORRESPONDENT of Moore's *Rural New Yorker* gives us the following account of a visit to one of the largest pork establishments in that wondrous city—a city whose extension and opulence, within the period in which the first foundation stone was laid, is unequalled in the world.

While on my way from New Hampshire westward, I found it convenient to stop at Chicago. Having visited the principal packing-houses in the city and learned their *modus operandi* of taking the porkers from their living state and converting them into the frying and boiling state, and being very much interested in their manner of procedure, I thought it might be equally interesting to the other members of the Rural family, who, like myself, only annually indulge in this unpleasant occupation for a limited period of time.

The principal firm in the city, under the firm name of the heading of this article, is situated near the Union Stock Yards, and employs about 1000 men in their two houses; 650 in one, and the remainder in the other establishment. During the packing season, and in favourable weather, the above mentioned number of workmen daily seal the doom of 6000 hogs; this making an average of six hogs for each employé to kill, dress, salt, cure, and pack. But this is more than is usually done, for the packing and curing season lasts much longer than the killing.

The piggy's first impression of this place cannot be very pleasant, for as soon as he is unloaded from the cars he is hooted and whipped from one division of the yard into another, and another, until he arrives at the footstool of his final destiny; here, in small squads, he is driven up an inclined plane. If he is a crippled or adipose porker, he ascends by means of an elevator, where he is shut off from his fellow porklings into a small pen,

where a short chain is unceremoniously wreathed around one of his hind legs, and between the twinklings of his eye, he is suspended in the air and moved along on a pulley so arranged that, after sticking, which is performed by two persons, he drops, head foremost, into the scalding tank where his bristles are seized with the avidity that hungry wolves devour an unguarded portion of a caravan's rations, and he is constantly turned over until he swims the length of the 20 feet tank, where he is taken upon a set of forks that raise the carcase to a table; here it is scraped, and all the hair and bristles removed, when it is again suspended, the head taken off and given to a party whose duty is to finish dressing it; the intestines are put into tanks and the fat detached from them.

Up to this time the operation of "takin' notes" is anything but pleasant to one who shrinks from flying blood, mud, or manure. But to return to the unctuous meat which was left suspended by the cords of the hind legs. The carcase is moved along on rolling trucks, being treated, in the meantime, to a bath of clean water, after which ablutionary exercise the two sides are cut apart and run around on the truck pulleys to a cooling room to remain undisturbed for thirty-six or forty-eight hours. In moderately cool weather, and when business is very driving, they are allowed to remain only twenty-four hours, when, as is also the case if allowed a longer time to cool, they are taken down, wheeled to the cutting benches, the head, feet, and hams are cut off by two men, whose sole business is to do this work, and they make short sides, hams, shoulders, and neck-pieces in about the same time that a New England farmer would convert a small-sized, soft-wood limb into stove lengths. The spare-ribs being taken out, the long or short sides,

as the case may be, are trimmed, the hams and shoulders are subjected to the same operation, and then sent to a lower floor through a sluice-way, where they are salted.

The spare-ribs are sold immediately, and the feet are usually purchased by glue manufacturers. The small trimmings are converted into sausage, when the cleansed intestines are generally brought into requisition. The fat trimmings and adipose portions are melted into lard in large tanks kept hot by engines. After being melted it is drawn out into cooling tanks, constructed similar to the most approved sugar evaporators, placed under constantly moving fans to facilitate the process of cooling. When sufficiently cooled the melted lard is turned into barrels and is then ready for shipment. Many of the packing houses barrel the lard without allowing it to cool, and some of them sell their sausage meat and hams fresh.

Having followed some of the corpulency of his pigship up to marketing, we will now return to the sides, shoulders, &c., as they come through the sluices from the upper floor. The trimmed sides and shoulders are first rubbed over with salt, then put up in piles from 4 to 6 feet in height, with layers of Onondaga or Liverpool salt, where they are permitted to remain five or six days before overhauling and subjecting them to another rubbing over with salt. This overhauling is repeated three or four times, when they are retrimmed, cleaned, weighed, and pressed into boxes, containing, on an average, from 520 to 540 lb., in which it is shipped to market.

The greater part of the packing houses do not smoke any hams, selling them fresh at present; but some are intending to erect smoke-houses in addition to the packing house.

### *IMPORTS AND EXPORTS OF AGRICULTURAL COMMODITIES.*

OUR foreign expenditure for the eight months of the present year has been totalled up by the Board of Trade. We take out those items that are particularly interesting to our readers. Meat of course comes first. Of living animals we have received considerably more in the two-thirds of 1873, than we had in 1872, but not so many cattle as we had in 1871. The prices have been very much higher this year than in any of the preceding ones. Consumers, of course, are too well aware of this, but it is right to say that the quality of the foreign animals has greatly improved. The value of the oxen this year is, per head, £20, 5s.; in 1872, £19, 2s.; and in 1871, £17, 5s. There is thus a difference in the course of two years of £3 for each animal. The number of cows imported in the eight months of this year was 23,399, an increase of 2036 upon the number received in the like term of last year.

The price which our dairymen have paid for this female stock has risen very considerably during the present year. According to our calculation the price this year has been £18, 14s. per head, whereas last year it was on the average only £14, 11s. Calves have been received in larger quantities on the month and longer term this year compared with 1872, and sheep and lambs—although there is a slight falling off in the number imported in August, as against the same month last year—shew an appreciable augmentation in the eight months of the present year upon the corresponding two-thirds of 1872. As regards the price paid for sheep and lambs there is a slight rise this year of a little over 1s. per head compared with the rates in 1872. Although since the beginning of January we have trebled our foreign receipts of the porcine breed, when compared with the same period of 1872,



there is some little satisfaction in the knowledge that the number of pigs we have imported during the past eight months is a third less than the returns for 1871. From some cause or another the importation of pigs in 1871 was remarkably heavy, the receipts in August alone being 10,098.

Altogether, during the term included in the past eight months, we have paid for our foreign consignments of oxen, cows, sheep, and swine, no less than £3,688,926; in the similar period of 1872 we were obliged to disburse £2,921,166 for these "commodities;" and in the preceding year the total falls little short of our payments during the present one, being £3,519,920. To those who view the meat question from a merely commercial point of view, there will of course be the consolatory fact that we are paid a vast amount of coin by foreigners for the produce of our manufactures. We must import *something*, they very properly urge. But economists, while admitting the latter statement, will be inclined to inquire whether our meat-producing resources are properly utilized. There is no doubt that a large proportion of the money sent abroad would go to enrich our own farmers, were our stock-raising facilities fully taken advantage of.

Notwithstanding that we have imported a greater number of porkers in the eight months of the present year, compared with 1872, it is noticeable that our supplies of bacon are in nowise diminished. On the contrary, both on the month and eight months of the present year, they have been greatly in excess of the quantity received in the previous one. The price we paid for the commodity gives conclusive proof of the increased supply. Since January of the present year we have expended, on foreign bacon alone, a sum exceeding that disbursed for our whole live stock supply during the same period, no less, in fact, than £4,080,930. In 1872 the amount was considerably smaller—£2,946,132; in 1871 the sum only reached £1,702,786. Beef, salted, fresh, or slightly salted, has also come to hand much more

liberally this year than it did last. During the past eight months this item in our yearly expenditure has cost us £380,361, while in 1872 we paid £293,927. Of "unenumerated meat"—a heading comprising fresh and salted, as well as preserved meat—there is not much difference in the receipts of the past eight months, compared with those of 1872. Our latest advices from Australia are to the effect that the high price of fat stock very materially prohibits meat-preserving operations. An attempt is being made, however, to transport uncooked beef and mutton from the Antipodes by means of a newly-discovered freezing process; and it would seem that a cargo of meat preserved by such a process is already *en route* for this country. It will be interesting to know the result of this experiment in preserving uncooked meat. Pork has been imported in large quantities, both in the month and longer period. Since January we have received 194,514 cwt. of that article which is so largely indulged in by the poorer portion of the population, the quantity received in 1872 amounting to 178,572 cwt. This year, so far as it has gone, we have paid £422,769 for our supply of pork; last year our expenditure under the same head was £361,706. The Returns continue to indicate a vast increase in our outlay for foreign poultry. Since January of the present year we have spent on poultry and game, including rabbits, no less than £118,856; last year we paid £88,567; and in the first eight months of 1871 our expenditure for these foreign wild and tame animals was £70,908.

The "cry is still they come!" If we compare the imports of eggs in August this year with the receipts of these ovoidal portions of the Englishman's breakfast in the same month of last, it at once becomes apparent either that we have evinced a greater liking for them during the present year than we did last, or that our home production must be declining. As far as the year has gone we have imported 4,261,643 "great hundreds" of eggs at a cost of £1,797,759.

while in the corresponding eight months of 1872 we received 3,319,604 "great hundreds," for which we paid £1,302,870. In the same term of 1871 we only disbursed £887,887 for the same commodity. These figures speak for themselves. Our imports of butter this year have occasioned us an outlay of no less than £4,337,078, slightly exceeding the sum spent last year, but happily somewhat less than the amount paid in the preceding year. Our receipts of cheese shew an augmentation of more than 200,000 cwt. for the two-thirds of the present year, as against the same portion of last, the price we paid for that dairy commodity since January of this year being £2,520,761, as against £1,732,667 in 1872.

We have received much larger supplies of wheat during the past eight months than we did in the same term of last year, the increase from the United States being very remarkable. Barley has not come to hand so liberally from abroad this year as last; oats on the other hand have increased, as have also peas; but the statistics of beans and Indian corn shew our imports of these products to be less this year than last. The following tables shew the quantities of grain and the countries from whence they were derived for the past eight months of the present year to compare with the same period of 1872:—

	QUANTITIES.	
	Eight Months ended Aug. 31, 1872.	Eight Months ended Aug. 31, 1873.
Wheat.	Cwt.	Cwt.
Russia.....	11,468,766	6,827,936
Denmark .....	128,832	248,347
Germany .....	2,272,093	1,305,975
France .....	333,123	1,169,103
Austrian Territories ...	41,962	15,009
Turkey, Wallachia, } and Moldavia .....	661,264	262,257
Egypt.....	1,582,352	974,738
United States .....	4,372,168	11,754,806
Chili .....	1,000,454	1,154,216
British North America	456,019	1,580,353
Other Countries .....	843,178	2,451,395
Total.....	23,160,211	27,744,135

VALUE.		
Russia .....	£6,663,088	£4,245,048
Denmark .....	84,949	167,166
Germany .....	1,512,169	920,309
France .....	207,653	746,837
Austrian Territories...	25,074	10,239
Turkey, Wallachia, } and Moldavia .....	353,676	152,591
Egypt.....	786,341	529,555
United States .....	2,816,375	7,622,924
Chili .....	649,131	719,794
British North America	295,244	1,026,854
Other Countries .....	557,903	1,642,712
Total.....	£13,951,603	£17,784,029

QUANTITIES.		
	Eight Months ended Aug. 31, 1872.	Eight Months ended Aug. 31, 1873.
	Cwt.	Cwt.
Barley.....	8,347,612	6,162,668
Oats .....	7,920,361	8,816,902
Peas .....	702,818	865,898
Beans .....	2,012,299	1,885,480
Indian Corn or } Maize.....	15,490,384	12,588,475

VALUE.		
Barley .....	£3,205,631	£2,624,178
Oats .....	2,867,000	3,498,227
Peas .....	298,492	369,304
Beans .....	801,211	783,546
Indian Corn or } Maize.....	5,530,183	4,264,413

QUANTITIES.		
	Eight Months ended Aug. 31, 1872.	Eight Months ended Aug. 31, 1873.
	Cwt.	Cwt.
Wheat Meal, and Flour.		
Germany .....	619,815	430,534
France .....	369,682	1,574,090
United States .....	301,240	750,172
British North America	164,491	265,892
Other Countries .....	606,729	1,248,108
Total .....	2,061,957	4,268,796

VALUE.		
Germany .....	£569,923	£421,423
France .....	343,024	1,500,794
United States .....	239,437	657,651
British North America	143,075	233,140
Other Countries .....	615,524	1,198,330
Total .....	£1,910,983	£4,011,338

Our imports of potatoes during last month are unexpectedly large, we having received no less than 31,607 cwt. of that esculent.



On the eight months the amount received is necessarily large in consequence of the very deficient crop grown in this country last year. Since January of the present year the blight has caused us to import potatoes to the value of £1,838,729. In the same term of 1872 we paid £364,470 for this root, and in 1871 only £125,521. There are very few exotic potatoes in the English market at the present time, and it is to be hoped that the abundance of our crop this year will continue to keep the foreign descriptions from our shores.

As regards manurial substances, there is a very diminished supply of bones on the month and eight months this year compared with last. For this fertilizer we have paid only £267,350 since January, while last year in the same period we expended £471,634. We have to note that of guano the supply this year is considerably larger than that of last, the past eight months having brought to our shores 101,220 tons, to compare with 76,563 tons in the first two-thirds of 1872. This year this valuable ingredient has cost us £1,114,333; last year we paid for it £737,455. Nitrate of soda likewise compares in bulk very favourably with the importations of 1872. Of that fertilizer we have received 1,558,711 cwt. during the last eight months, to compare with 1,117,796 cwt. in the first eight months of last year. The cost this year has been £1,184,069, as against £860,223 last.

The importation of oil-seed cakes has fallen off during the past eight months.

There is an increase in the quantity of wool received during the past eight months compared with last year, and value is considerably augmented. The following tables shew the quantity and value of wool imported this year compared with last:—

QUANTITIES.		
	Eight Months ended Aug. 31, 1872.	Eight Months ended Aug. 31, 1873.
	lb.	lb.
Wool, Sheep, and Lambs.		
From Countries in Europe	25,323,764	20,112,775
„ British Possessions		
in South Africa	22,672,949	26,880,649
„ British India.....	15,295,177	14,210,409
„ Australia .....	161,641,453	174,084,180
„ Other Countries ...	25,716,670	19,186,333
Total.....	250,650,013	254,474,346
VALUE.		
From Countries in Europe	£1,451,573	£1,142,530
„ British Possessions		
in South Africa...	1,471,271	1,827,371
„ British India.....	677,068	644,809
„ Australia .....	10,067,018	11,022,421
„ Other Countries ...	1,198,873	898,144
Total.....	£14,865,803	£15,535,275

The debit side of the account, as far as agricultural commodities go, is not a very wealthy one. With regard to the export of butter, there is a falling off on the month and eight months, and the quantity of cheese sent from our shores is less this year than last. We exported 355 horses last month, 123 of which number went to France. The total number of the equine breed exported since January is stated in the Returns to be 1675, as against 2210 last year.

## THE CROPS OF 1873.

MR THOMAS C. SCOTT has published his estimate of this year's harvest. He remarks that if ever the prediction is verified that a bad beginning is frequently followed by a good ending, it is likely to be the case this season in regard to our corn crops. An autumn and a spring seed time of unusual difficulty, arising from continuous and excessive rains, were followed by retarding cold, dry winds up to the middle of June, and then by forcing summer weather, which continue to the present time—a succession of influences much more conducive to good results than when they are reversed by having an early spring and an ungenial summer, as was the case in 1862, 67, 71, and 72, and in other bad wheat years, and the consequence is that, with few exceptions, we have now a fair prospect of an average amount of produce from all our crops. The principal exception is in the case of our most important cereal, wheat, which, on the heavier and real wheat soils, especially where naturally wet and undrained, and tilled in the ordinary way by horse-power, is thin on the ground and defective in the ear. For want of drainage the horse tracks on the surface remained full of water to the brim during winter, and only escaped by chilling evaporation in spring, and the subsoil water, for want of deep cultivation to enable it to sink, remained in injurious proximity to the roots of the plants, and decimated them to such an extent that much of the land sown was ploughed up in spring for other crops, and that which remained has only produced half a crop. The land under these conditions probably extends to 1,000,000 acres, and the deficiency of produce to at least 10 bushels an acre, entailing a loss at present prices, and from easily remedied causes, of not less than 3,500,000. But for these great drawbacks, then aggregate wheat product of the year would be decidedly above an average, as the crops on the lighter and more friable soils, not usually dedicated to wheat-growing, indicate considerably more than an average yield.

The immense area of wheat land left unsown at the end of October, probably 1,000,000 acres, and subsequently in part planted out of season and in inferior condition, or with spring wheat,

also militates against our home production; for not only does late-sown autumn wheat decrease in yield as the season advances from the month of October, but spring wheat seldom realizes as much by £3 an acre as that sown in due time in autumn on similar soils. Thin sowing is decidedly proved this year to be impolitic, because on 90 per cent. of the area under wheat, and sown with the usual quantity of seed, the plants are too few in number on the ground, have not tillered out well, nor have they large heads, and cannot, therefore, produce a *maximum* crop. The variableness of the wheat crop generally this season leaves no one at liberty to dogmatize as to the probable aggregate yield; but taking the best and worst crops on various farms in wide-apart districts, and striking an average, and then assimilating these averages from districts ranging from 50 to 100 miles south, north, east, and west of London, I have come to the following conclusion:—

1. That we have not more than 3,300,000 acres under wheat in the United Kingdom, being about 500,000 acres less than last year.

2. That the yield will be 2 bushels under an average crop, or say 28 bushels an acre. This exceeds by 6 bushels an acre my estimate of last year's crop, and would yield an aggregate product of 11,550,000 qr. Deducting 1,000,000 qr. for seed required for home use, 10,500,000 qr. remain to meet a consumption of 22,000,000. The deficit is 11,500,000 qr., which is 500,000 qr. more than I anticipated. Last year I estimated the aggregate product from a larger area at less, and the foreign supply required at 13,000,000 qr.; it has already reached 12,500,000, and there are still sixteen days to run to complete the agricultural year. This exceeds by 3,000,000 qr., or £9,000,000, the average imports for the previous four years. The main drawbacks to the wheat yield this year have been—firstly, the want of drainage, necessitating the continuance of the ridge-and-furrow system, which always causes a large percentage of tail corn; secondly, defective ears from empty cells, caused by rust or maggot, and occurring, not as usual at the top or bottom of the heads, but in the centre. These blanks,



after examining many hundreds of heads, I estimated at a loss of a bushel an acre throughout the whole wheat crop, which on 3,300,000 acres amounts to nearly 500,000 qr., and over £1,000,000; thirdly, thinness of plants on the ground, especially on the heavier soils, and the absence of tillering.

The barley crop of this year covers an extra area, and is good in quantity and fair in quality. The latter is a more essential element in its value than in relation to any other cereal, as no foreign produce at present equals it for malting purposes.

Oats occupy about the same width as last year, and promise an average. Seeing that we can get this grain from many countries, and that its home use for horse provender is in many cases being superseded by maize, its success or failure is reduced in importance. The earliest I saw cut this year was in Surrey, on the 17th of July, and the crop looked like yielding from 60 to 70 bushels an acre.

Beans are well podded, and will be an average crop, and peas above.

The hay harvest, which was late this year, and is not yet finished in northern districts, was not very satisfactory, as the crop, though better than anticipated in early spring, is not above three-fourths of an average, and is coarse in quality. Except in hay districts, this crop is not taken much into account; but as it occupies 5,000,000 acres in the United Kingdom, and yields as many tons of produce annually, worth £20,000,000, and as the health of much stock and the rent of much land depend upon it, it is of more importance than many are accustomed to think. Besides these specialties, it now appears by universal statistics to be the most important crop in the world, and equal in value to two-fifths of all other crops put together. Our artificial grasses, clovers, and forage plant

have not yielded well this year, because many of the plants were rotted out during the winter by the wet.

Potatoes occupy about three-fourths of the breadth of last year, and look extremely well. There will be a great bulk of produce if they escape the disease, and the poor will likely be supplied with this favourite root at less than half the prices of last year. Last year the few farmers who had marketable crops made little fortunes, but they cannot do this under any circumstances, as they planted their crops at a triple cost for seed, and the produce is now selling at half last year's prices.

Mangold is an excellent crop, and as it may be grown successively on the same soil for many years, and keeps sound until the present month if required, few farmers should be without it.

Swede and all other turnip crops are good, and kohlrabi, which I have often pressed upon the attention of agriculturists as a substitute for the swede for sheep keep on heavy lands, is extending at the rate of 10,000 acres per annum, and now occupies from 40,000 to 50,000 acres.

Many agricultural labourers have had a taste of town life and occupation since last harvest, and find nothing so pleasant and congenial to their tastes as field labour—as indeed it is to 9-10ths of the human race—and have, therefore, returned to their old country houses, wiser, if not richer men.

When we have greater facilities for obtaining cheap loans by limited owners of land—at present representing two-thirds of the surface of England—labourers will be better housed and permanently employed, the spirit, if not the act of co-operation will spring up between them and the rent-paying occupiers and the agriculture of England will then more and more become its backbone and its pride, and the wonder and admiration of all other civilized nations.

## Random Notes.

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### OUR FOOD SUPPLY.

EVERY item of news in connexion with food supply is interesting at the present time, whether the meat be produced from the earth, the air, or the sea. Oxen and sheep are normally at a price which would have been considered *abnormal* in former times. Half a century, nay, a quarter of a century ago, it would have been thought that such rates as we are now paying for beef and mutton, could have been justifiable only on the ground of war or of famine in the land. We are sorry to say that there is not much prospect of a decrease in the price of that food which imparts stamina to a hard-working man. From week to week, in the wholesale markets, beef and mutton may fluctuate from 2d. to even 4d. per stone, which is from  $\frac{1}{4}$ d. to  $\frac{1}{2}$ d. per lb., meaning a good deal, no doubt, to the sellers of large bulk, but nothing to speak of to the buyers of small quantities. Our only hope of reduction would appear to be in the careful cultivation of the produce of the deep. There are more and better fish in the sea than were ever caught; there ought to be far more fish in the rivers than there are. There has been for years and years a recklessness in the capture of fish, clean and unclean, by netsmen and anglers alike, which has tended to the impoverishment of our streams and to the consequent decrease in our food supplies. We are glad to note that under the guidance of the Salmon Fisheries Commissioners much good has been done in the way of providing more food for the people. Mr Gordon-Cumming tells us (he is one of the commissioners for Scotland) that the netting season which has now ended "has been generally most satisfactory." The year, he says, began well, which is proved by the fact "that the

finest fish were selling in London in February at 1s. 6d. per lb., a thing probably unheard of before." We think we have heard of them selling cheaper, but not in recent times. Mr Gordon-Cumming mentions some extraordinary sport obtained by trolling on Lord Breadalbane's fishery, on Loch Tay, where, from the 5th of February to the opening week of July, 779 salmon were captured by this method, the average weight of each being within 1 oz. of 23 lb. Mr Gordon-Cumming goes on to say—

A good spring fishing has been followed by a most excellent grilse season, both as regards the size and numbers of the fish. Some of the tacksmen on the coasts tell me that they have not had so good a season for twenty years.

The weight of grilse, especially on the West Coast, has, I think, been remarkable. I saw many of 10 lb. to 12 lb. in the middle of July. This would lead one to infer that there had been an unusually early migration of smolts. With regard to salmon, the average weight (thanks to the protection of kelts) is undoubtedly increasing. Few "monsters" have been killed this year, but many from 40 lb. to 50 lb. have been landed. There is a great stock of fish now on the coasts waiting for floods, which, on the east side of Scotland, have been very moderate as yet. Anglers may expect good sport during the extension period. Will you implore them to be merciful to the breeding fish, by using the landing-net instead of the clip as often as possible? Should this be done, I am sure that many a baggit and kipper which no true sportsman would wish to see knocked on the head will be returned to the water.

We add our recommendation to Mr Gordon-Cumming's, that anglers, if not for the sake of the public, for their own, will be "merciful to the breeding fish."

### HOUSEHOLD EXPENDITURE OF A SOMERSETSHIRE LABOURER.

A correspondent, who signs himself "One from the Plough," sends us what he considers a necessary list of household ex-



penditure in Somersetshire for a man and his wife and four of a family. The programme does not appear to be very extravagant, yet it is well known that agricultural labourers in many districts live upon less. How they can do so our correspondent wishes to know, and to aid him in getting an answer, we give prominence to his communication:—

*A List of necessary weekly household expenses of a Somerset farm labourer, whose family consists of man, wife, and four children:—*

	s.	d.
House rent .....	1	6
One dozen of bread, at 7d. a loaf.....	7	0
Meat or pork, at 8d. per lb. only, allowing ½ lb. a day for whole family .....	2	4
1½ lb. of cheese, at 8d. per lb.....	1	0
1½ lb. of sugar, at 4d. per lb.....	0	6
¼ lb. of tea, at 2s. 4d. per lb.....	0	7
1½ lb. of butter, at 1s. 2d. per lb.....	1	9
Candles or paraffin.....	0	6
Fuel (1 cwt. of coal) .....	1	6
Boots and shoes, one pair each per annum.	1	0
Clothing .....	1	0
Washing material—soap, starch, &c. ....	0	4
Needlework, repairs, &c.....	0	2
Salt and pepper .....	0	1
Schooling.....	0	4
Benefit club.....	0	4
Treacle.....	0	3
Tools .....	0	2
Furniture, sundries, and bedding .....	0	8

£1 1 0

It will be observed that no allowance is made in the above list for luxuries, such as milk, beer, snuff, and tobacco.

If any person can shew me how he can live with less than the above, I should be glad of such information.

#### THE EMPLOYMENT OF SOLDIERS DURING HARVEST-TIME.

“A Devonshire farmer” complains to the *Times* about the red-tapism of the War Office. It seems to us that under his particular circumstances he has justifiable grounds for fault-finding. It will be recollected that last year remonstrances were made against the employment of soldiers in the field, both to Mr Cardwell and to Mr Gladstone, on the ground that in their peaceful capacity of reapers they were interfering

with the rights of labour—that their presence in the fields was an *undue* interference with the rights of labour, especially so at the very time when that labour was engaged in a contest with capital. It was established that the practice of allowing soldiers to earn something during harvest-time was of long standing, and in many seasons had operated for good, and it was not Government’s intention to stop it. It was also intimated that in cases where there was a dispute pending between masters and men, that the services of the military should not intervene—an unwise concession by Government to popular clamour, as we then thought and said. They preferred that the corn, the staple food of the nation, should be left to lie rotting upon the ground rather than run counter to the caprices and passions of those who declined to accept a fair day’s pay for a fair day’s work. But we shall let last year’s doings rest. “The dead past may bury its dead.” “The Devonshire Farmer’s” case is the one we are now considering. Here it is in his own words, which none of ours could strengthen:—

I hold a farm adjoining a fort, and, as the artillerymen stationed there have not much to do, two of them came to me and said, “If you will allow us to have a piece of ground in which to grow potatoes we will help you in harvest.” To this I consented, and for some years this arrangement has been carried out. This year, about a week ago, I received a communication from the officer in command to the effect that I must send him a note asking for the services of the men in question when off duty.

I did so, and at the end of a week (in harvest-time, remember) I received a note from him to say that he had forwarded my application, but had not, as yet, received any answer. Consequently, with every prospect of a wet harvest, I am deprived of at least one-tenth of my force, which will keep the corn out longer, at greater risk of loss and damage.

Seeing that there has been no strike in the district in which this cultivator of the soil resides, and noticing also that the practice of lending land to industrious artillerymen in return for their honest labour has wrought so beneficially for both parties for years, we are of opinion that a speedier answer should have been returned to “The Devonshire Farmer’s”

appeal. His willingness to oblige made the men more comfortable, consequently more loyal; their labour in return made him less anxious. Both were served and the country was the gainer. No wonder with the unfavourable prospects which he sees before him that this western farmer is wroth at the "knot of organized idlers in the East-end, or rather for the organization of idleness" who intimidate the Government into a course of policy so disadvantageous to the artillerymen and himself.

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THE IRISH LAND ACT.

We have another case of grievance from Ireland in connexion with the Land Act. Quite a commotion, we are assured by a correspondent of the *Times*, has been created in that portion of Donegal which belongs to the Earl of Erne, because his lordship has had the audacity to give notice to the effect that "no sale or assignment of any holding held under a tenancy from year to year existing on the 1st of August, 1870, or to be afterwards created, shall be permitted or acquiesced in if made without the consent in writing of his lordship or his agent, or at a greater sum than five years' rent, which it is stated in the notice is the rule of the estate. No purchaser upon any other terms will be recognized or accepted as tenant, and proceedings will be immediately taken to prevent any attempt to assign its possession against the landlord's will. The tenants are also warned that it is contrary to the provisions of the Land Act for any one to subdivide or sub-let his farm without the owner's consent in writing, and they are prohibited from letting their lands in conacre, except for the purpose of growing green crops. Tenants disregarding the notice are informed that they will forfeit all claims to compensation under the Land Acts. They are also requested to protect the game. This manifesto," remarks the correspondent, "is probably intended to counteract the plans of the tenant-righters, who are endeavouring by every means to obtain liberty to dispose of

their tenant-right to the highest bidder, without any restrictions by the owner." We are of opinion that the landlord is not acting in the least tyrannically in giving such a notice.

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MILK-POISONING.

There may be some slight consolation in knowing that milk-poisoning is no new thing. So long ago as the end of last century a surgeon, by name Mr Thomas Hayes, pointed out in the *Bath and West of England Journal* that there was danger to the public health arising from imperfect dairy arrangements, and he especially urged caution with reference to the use of milk-vessels composed of lead, copper, or brass. The *Pall Mall Gazette* has summarized the observations of Mr Hayes as follows: Mr Hayes maintained that butter "may be innocent or mischievous according as it contains many or few adventitious materials, &c., used in the process of making it." He had observed that in many great dairies the milk was suffered to stand in lead, brass, or copper vessels to throw up the cream, and thought it possible that the milk might corrode or dissolve particles of these vessels, and therefore be liable to communicate pernicious qualities to butter. Whoever, he says, has been much in great dairies must have observed a peculiarly sour, "frowzy" smell in them, however clean they may be. In some dairies this smell arises from the utensils being scalded in the dairy, and in others from the bad construction of the building, which is not properly ventilated, but in all a great deal of the lighter or more volatile parts of the milk fly off from the surface of the pans, and furnish a great quantity of acid effluvia to the surrounding air and ceiling, which is again deposited on everything beneath it, and, of course, often on the vessels after they have been put by clean at the times of their being out of use. It also happens sometimes that after the vessels are washed they are not carefully rinsed nor perfectly dried, so that some of the milk is left on the surface of them, which dissolves the metals by its oily animal



or acescent qualities. Dairymen also often keep the milk in vessels until it is sour, in order that it may throw up more cream, and this sour milk, if acting on lead, produces "a calx of sugar of lead; and if on brass or copper, verdigris. Independently also of the acid, the animal oil in the cream will dissolve brass and copper. That an acid floats in the atmosphere of a dairy may, said Mr Hayes, be proved by placing therein a basin of syrup of violets for a little time, which will be found to turn red. After innumerable experiments he had arrived at the suspicion that butter from some of these causes was sometimes very unwholesome, and that many a casual and obstinate complaint which physicians in vain laboured to account for took its origin in the dairy." The evils likely to arise from the consumption of milk were "spotted" better three quarters of a century ago by Mr Hayes than they have been in 1873 by Dr Smee.

#### IMMORALITY IN THE RURAL DISTRICTS OF SCOTLAND.

About three months ago we commented upon the figures of the Registrar-General of Scotland with reference to the amount of immorality which prevailed in the rural districts. The Returns then published shewed that in some counties out of every five persons you met in your travels you might safely set down that one of them was born without the sanction of the church or the Registrar. We are glad to note from the last Returns, that there is a little improvement. The highest per-centage of illegitimacy which the quarter ending June shews is in Wigtownshire—that county so celebrated for its martyrs and admirable make of cheese. Wigtownshire has always been a glaring sinner in this particular way, although the pioneer of high farming. And yet there are no bothies in Wigtownshire—bothies being a mode of accommodation which we have been told by clergymen and popular lecturers is, to all intents and purposes, conducive to this sin. The per-centage of illegitimacy in Wigtownshire this year was 17.3, so that, instead of

one in five having the *bar sinister*, during the last quarter there was, in round numbers, only one in six in this county. Kincardine came next in the delinquency class with a per-centage of 16.1; and then, to jump from north back to south, Dumfries, the great pork-curing shire, gives us 15.8. Banff shews a little improvement, we hope it will continue in well doing. Out of the number of children born within its borders between the months of April and June inclusive, there were only 14.3 per cent. illegitimate, or one in every seven whose advent into the world was not legally sanctioned. Aberdeen-shire was more than good when we consider its former history. The illegitimate birth-rate amounted to only 13 per cent., about one in eight. Next in order of sinfulness comes Kirkcudbright, then Elgin, which sinned equally, the per-centage in each case being 12.7. Forfar had 11.5, and Caithness 11.1 per cent. of illegitimate children. To most people on this side of the Tweed it seems an anomaly that a country so thoroughly religious in its own estimation should be so humiliated in presence of the inexorable character of figures. A want of good cottage accommodation, although we are glad to say that this is being gradually, if rather slowly supplied, an elasticity of the law of Scotland, which stretches back beyond the period of the legal ceremony of matrimony to make legitimate children born before wedlock, and, in some respects, a rather lenient poor-law tend to the appalling breach of chastity we have noticed.

#### "IRELAND FOR THE IRISH."

"What will he do with it?" If we recollect rightly, this is the title of one of Lord Lytton's novels. We ask the same question of the Home Ruler with regard to Ireland. What will he do with the Emerald Isle when he has absolutely got it at his own disposal, when there is not left in it a single Saxon courageous enough to challenge the miracles of the sainted Patrick; when, in fact, all of the breed shall have been

banished from the soil as ignominiously as were the reptiles of old? "Ireland for the Irish," indeed; a pretty mess they would make of their fine country, were there no controlling power—controlling, however, only in such a way that the most delicately-mouthed of their own lady's pads would scarcely feel the bit! They have got their wish in ecclesiastical affairs; they have a Land Act which, if not altogether perfect, has given them securities and privileges beyond those enjoyed in the sister countries. With this Act the majority of the cultivators seemed satisfied for awhile, but grievance-mongering is the profession of Irishmen, and soon that which they had applauded was ridiculed and denounced by the very tongues which inaugurated it with pæans. Still trying hard to make "Ireland for the Irish," a number of Saxons combined with Celts—bear the latter fact in mind, the Celts being the predominant element, we believe—to utilize vast deposits of peat throughout Ireland, and by so doing they hoped also to greatly improve the character of the soil, to extend cereal and root cultivation, and increase the herds of cattle and flocks of sheep. Coal was dear, and a supply of peat would be of great benefit to consumers of fuel, and very profitable to the persons who undertook its manufacture. Such were the ideas animating a company which was formed, and some of the directors went over the Continent in search of the machinery best adapted for compressing peat into a portable, and therefore exportable form. They made a selection, and set the various appliances down in the county of Westmeath, and commenced working very

satisfactorily. The labourers were Irishmen, and good wages, to the extent of £100 per week, were distributed in the district to the advantage of at least half as many more families. What better mode could have been adopted to secure "Ireland for the Irish?" It might have been thought that the Company and its members would have been looked upon as benefactors. Not a bit of it; *au contraire*, they were regarded as tyrants. Because the manager felt bound to discharge several lazy hounds, some of the directors were waylaid by a lot of ruffians, and, under the potential influence of pistols at their heads and blunderbusses at their breasts, forced to swear that they would part with their efficient overseer. Relieved from the terror of the time, they did not do so; they did what we cannot but consider, under the circumstances, a better thing—they shut up the works altogether, so that now the industrious suffer for the indolent. If the former class will not make a stand against the latter, they have themselves to blame for the loss of £5200 a-year, with the prospect of a steady increase. This is no mean sum in a county such as Westmeath. And besides this loss they are retarding the cultivation of the soil which the extraction of this peat predicates, and thereby hindering their own chances of obtaining more wages and so elevating themselves in the social scale. "Ireland for the Irish" again we exclaim! We are beginning to believe, although we are loth to do so, that the inhabitants will never be satisfied until such time as the Emerald Isle subsides with them all to the depths of that "Azure main" from which the country at first arose.



## The Old Farmer's Note Book.

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I DARE say, Mr Editor, you have heard of the old saying that, "There is many a way of killing folk." Probably you have never realized the fact, but I have in my own person. "What!" you will exclaim in astonishment, "you are not dead yet," as the little boy said when he was under the *debris* of a fallen house in Edinburgh, and told the men who were endeavouring to get the victims out "to heave awa." I saw the effigy of the courageous little lad (who was saved) in stone the other day, when I was down in the Grey Metropolis of the North. But, as I was going to say, there are many ways of killing. Stoning to death was an approved method in Jewish times, and it must have been anything but a comfortable one. Sawing asunder was another method of putting people out of existence, and, as the coarse butchers' saw ripped through the flesh and grated on the bone, the sensation, I imagine, would be terrible. It makes my flesh creep when I think about it, even in my cosy arm-chair. Then crucifixion must have been harrowingly painful, and the consignment of men's bodies to the tender mercies of wild beasts something awful. These beasts were not fed up like our Zoological specimens, they were simply kept to crunch human bones and lick human blood. Then there was the stake, at which men and women were burned to cinders, and it must have been excruciating torture as the cooking process went on. Again, we had refinements of cruelty practised in later ages by other than the inquisition fraternity—

"Luke's iron crown, and Damion's bed of steel."

The consignment of the animate carcase to the nibbling and gnawing of rats; the poisonous emissions of vile reptiles, &c., was not uncommon. Then there is drowning, which is not so painful a death after all, as I can testify, having been three times nearly "away with it" in this fashion myself; and as for hanging, there cannot be much in it, as it is told of a Scotch judge that he said to a prisoner who strongly pleaded his innocence, that "ye'll be nane the war

[worse] for being hangit, my man." There was a wicked old chieftain, I beg the pardon of your Highland readers, laird I mean—there are no chieftains on the Borders—who was at length brought to book, and his enemies, he deserved the enmity of all humanity, paid him out in this manner—

They wrapped him in a sheet of lead,  
A sheet of lead for his funeral pall,  
And they put him in a cauldron red,  
And they melted him, lead and bones and all.

"Bless my soul," I think I hear you exclaim, Mr Editor, "what is this dotard after now. He has often wandered before, but never got so far off the track." I tell you I am not off the track at all. I have just been going a round-about road to excuse myself to your readers for having been so long absent from your columns. "There's many a way of killing folk," I say again, and I have given you a few modes, but none of them so cruel as "killing by kindness." This is the slow process I have been undergoing for a few weeks among my farmer friends in the north. It is many years since they saw me, and I am fain to tell you they were right glad to see me, but mercy, their potatoes are too strong and deep for me in my old age. And unless you "tak a dram" wi' them ye ken—gracious me, I am lapsing into Scotch—they are not well pleased with you. I managed to get away in time, or else I firmly believe I should soon have been killed outright with kindness. As it is, I am half dead.

I am glad to tell you that the crops in the Lothians are looking uncommonly well. In fact I never hardly saw them better, more particularly the root crops. The turnips are simply grand, and the potatoes are flourishing like a green bay tree. Here and there it is said one or two patches in fields shew signs of disease, but I was over a great many farms, and I cannot say that, with one exception only, I noticed the malady anywhere. I think the harvest, too, as early as it usually is. It was commenced about

a fortnight ago. Some fields had been cut before, but reaping was not general before the time I have mentioned. I am sorry to hear from an old friend in the neighbourhood of Edinburgh, with whom I spent one or two pleasant evenings, and who was in the jolliest of spirits about the quantity and quality of his crops, that the rain has been seriously interfering with his harvest operations, and he says there does not seem much prospect of a change. In truth he says about the outlook that, it "is quite depressing." I say to him, "Cheer up, old fellow, there's a good time coming, the Lammas spates will not last for aye."

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As you may well think, I have not had much time to look over my Note Book since I came back from my northern tour. It has taken me all my time to set my house in order since I came back. I do not mean my dwelling—the housekeeper takes care that that is always right, but I mean by house my body, which was knocked sadly out of gear among the wild callants in the north. I have got one or two jottings out of it, however, that may interest some of your readers, if not them all.

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About the weather I pick out the following, which may rather stagger some folk with regard to the moon's influence on the weather, Commander Maury says:—"The changes of the moon have no effect upon the weather. The moon changes, says Maury, every 7.2 days, consequently every change in the weather must take place within the period of 3.6 days either before or after a moon change, and her worshippers give her all the credit for it. The moon governs the tides, but not the atmosphere. The most faithful observers have failed to detect any tide in the latter, or any variableness under the moon's influence." A journalist writing about this says:—"So this vexed matter may be considered as set at rest, and we can defy the weather prophets." Commander Maury is a great authority upon the Gulf Stream, but I am not quite sure that he knows so much about the weather. At all events I am too old now to lose faith in Luna. Younger ones may do as they like—act according to their lights.

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Perhaps some farmers' wives may thank me for telling them how to bone a turkey. This fine bird never eats better, I can tell you, than after it has undergone this process. (If a woman

wishes to please her husband after he comes in from a hard day's harvesting, give him a piece of boned turkey and a glass of sherry, if he does not like beer or cider.) Boil a turkey in as little water as may be, until the bones can be easily separated from the meat. Remove all the skin; cut the meat in thin slices, mixing together the light and dark parts. Season with salt and pepper. Take the liquid in which the turkey was boiled, having kept it warm, pour it on the meat, and mix it well. Shape it like a loaf of bread, wrap it in cloth and press with a heavy weight for a few hours. When served up it is cut in thin slices. Some of our professional cooks can shape it somewhat like the original bird, so that one cannot tell at once when seen that it is boned turkey; but this requires skill and labour, and it makes no better eating.

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I pasted the following in my jotting-book the other day. I cut it from an American paper which an old friend out in Virginia occasionally sends me. It is said to be an effectual way of taming a vicious horse. I have seen them tamed in a gentler manner. A vicious mare was given Mr Jonathan A. Smyth to tame, which, it was said, he could not manage, unless he dealt with the devil, for she was a wild, skittish young thing, high tempered, and disposed to kick and bite. He ordered her into a barn, and then entered, and fastened the door. Before she had time to survey him he was giving her the lash smartly; around she went kicking and jumping; no rest was given; the sweat flowed, and she slackened in her movements. When she approached him he slackened his whip, held out his hand, and said, "come along." Again she was off, and the lash applied. This was repeated several times before she would advance. When she moved towards him, he approached and patted her; and as he moved away and said, "come along," she followed. In a moment she darted off; he applied the lash smartly; she stopped, trembled, and approached him. He patted her neck, and said, "come along," and she followed him several times around the barn. When he lagged, she was away, and the lash applied. After that she would not remain 2 feet from him. He ordered the door to be opened, and the mare followed close to him through the crowd, and back to the stable. This shews, and proves clearly, the first steps, and only correct way, of forming an acquaintance with wild and vicious horses.



I am getting better of the Talishkar now. Very probably, Mr Editor, you don't know at all what Talishkar means. It might be as well if you never did. Nevertheless, I'll tell you what it is, and I'll do so indirectly through the medium of two Highland dealers in cattle, who at long intervals—for in my young days communication was not so swift as it is now—used to visit Glasgow market for the purpose of disposing of the few animals they could spare from their limited stock. On one occasion a good sale had been made by one of the dealers, and however much the kilted men may take in those who “wear the trews,” they are not always niggardly amongst themselves. The scene was a boat on the Clyde—that famous river for “mud and muddlements,” as I once heard a not unbiassed citizen speak of it. “An' fat did ye say ye got for thae twa queys, Tonal?” “Twunty pounds.” “Twunty pounds!” re-echoed John, holding up his hands in utter astonishment, for meat, mind you, was not so dear in those days as it is now. “Twunty pounds is a goot price.” “Aye, but the queys were goot. Steward—bringing us another half mutchkin of the Talishkar.” And this was the sum total of the conversation between these two Highland farmers from the time the vessel left the Broomielaw in Glasgow to her entrance into Oban—according to the account of a Sassenach fellow-traveller, who inwardly cursed the “goot queys,” the twenty pounds that the pair brought in the market, their seller and his companion, and the steward that brought the Talishkar so often at their request through the night. But then he did not taste the Talishkar, or it might have put him in a more amiable mood for a time, although it might have played what the Scotch call “auld cloutie” with him afterwards.

But, as I have said, having got better of the Talishkar, I drank I have been peeping into my Note Book again, and the first thing I find there forms rather a startling contrast to our experience now-a-days. I think I mentioned that the traditional queys I have referred to were much cheaper than any that could be bought at the present time. But, mercy me! the amount paid for them was nothing less than exorbitant when we contrast it with the rates our ancestors disbursed for food 550 years ago. Witness the following from my Note Book. It is a pity that the quantity of bread was not mentioned,

but for the sum it must have been large, judging from the price of fowls. And women's labour must at that time have been rather at a discount. The cheapness of provisions is minuted in an account of the expenses of the feast of the Exaltation of the Holy Cross, at Conisbrough, on the 15th and 16th of September 1321:—

MONDAY.

For bread bought..... Eighteen-pence.  
For four gallons of  
wine bought ..... Two shillings.<sup>1</sup>  
For twelve gallons of  
ale bought at Don-  
caster ..... Eighteen-pence.  
For sixteen gallons of  
ale bought at Con-  
isbrough..... Sixteen-pence.  
For shambles meat  
bought ..... Two shillings.  
For eight fowls bought One shilling.  
For two geese bought Eighteen-pence.  
For eggs bought ..... Thirteen-pence.  
For two pounds of can-  
dles bought ..... Three pence half-penny.  
For a woman's wages  
for fetching theale One penny.  
For provender for the  
horses bought ... Fifteen-pence.

TUESDAY.

For bread bought..... Eighteen-pence.  
For one gallon of wine  
bought ..... Sixpence.  
For four gallons of ale  
bought in Don-  
caster ..... Sixpence.  
For shambles meat  
bought ..... Eighteen-pence.  
For two geese bought Eighteen-pence.  
For one fowl bought... Three half-pence.  
Fortwopigeonsbought Four-pence.

The question of the Game-laws, as I foresaw, is not making any approach towards a settlement. It does not appear to me that it ever will, unless folk will think more about what the Game-laws really are before they prate so much about them. I am glad to see, however, that numerous proprietors are giving their tenants leave to kill rabbits and hares, and, I think, when this is granted, farmers will not have much cause of complaint. It is tiresome to find, no matter what the subject may be, that

sentimentalism, if it do not absolutely overrule, at all events worries common sense to no good end. I, therefore, only refer to the Game-laws now to introduce a jotting from my Note Book as to what an American thought about them. The letter I quote from was one sent to a friend of mine, the Rev. Mr Daniel, the editor of *Rural Sports*. Mr Daniel acknowledges the communication thus:—"To Major Hazzard, of Beaufort, South Carolina. The compiler feels himself extremely gratified for his communication respecting the sporting in that part of America. Hinting at our forest laws, he remarks:—"The Americans have very curious sentiments on this subject. We say, how is it possible that any nation would suffer, or consent that a part of her people, to the total exclusion of the rest, should (under any denomination whatever) claim to themselves the exclusive right of using that which God in his unerring wisdom and goodness has absolutely and freely given for the use of the whole. Pardon me, my good sir, for these observations. Born and educated in this happy country, and having never been in any other, I am at a loss to account for any people having ever, in the first instance, submitted to such an establishment of things; for, I find by your book, few are allowed to enjoy that which all are fond of, and desirous of partaking." You see, dear readers, to alter Shakspeare a little, that I am nothing if not impartial.

There is a great deal of nonsense about "the good old times" talked, I know, by old fogies like me. We are often like the wilful Israelites shutting our eyes to the good that is present with us, and regretfully looking back, as they did, to the flesh-pots of Egypt which they disdained when they had them before their noses, just as we did not appreciate much the days of our youth when we were still young. Still there was some jollity in these old times. Here is a specimen of the fare at a coming of age in 1807, which, if of a rough and ready character, seems certainly profuse enough:—"The magnificent entertainment given at Wentworth House, on the 4th of May 1807, being the birthday of Viscount Milton, when his lordship came of age, may be estimated from the annexed bill of fare—2 oxen, roasted whole, 237 stone, and 12 sheep, roasted, 83 stone 8 lb., given to the populace; 1 ox, 99 stone; 2 Scotch bullocks, 130 stone; 14 sheep, 94 stone 6 lb.; 3 lambs, 3 stone

7 lb.; 3 calves, 22 stone 2 lb.; 10 hams, 54 fowls, 240 bushels of wheat for bread, 555 eggs, 30 dishes of roast beef, 26 ditto of boiled beef, 30 ditto of roast mutton, 22 ditto of boiled mutton, 7 ditto of lamb, 10 ditto of hams, 6 ditto of calves'-head hash, 18 ditto of fowls, 12 ditto of veal, 12 pigeon pies, 40 mutton pies, 75 puddings, 72 hogsheads of ale, 6 ditto of small beer, 473 bottles of wine, 23 gallons of rum, 18 gallons of brandy, and 38 gallons of rum shrub. There were 330 tables, and 853 seats in the house, and about 1000 people dined and regaled themselves plentifully."

By the way, this Viscount Milton, in whose honour these English and Scotch cattle were slain, and hogsheads of beer, and gallons of wine and brandy were shed, was the descendant of that Marquis of Rockingham, First Lord of the Treasury, whose memory I find, according to one of my jottings, "is revered by all and is cherished with such peculiar enthusiasm by the natives of this county" [Yorkshire], and is thus characterized on his monument by Edmund Burke:—

"A man worthy to be held in remembrance, because he did not live for himself. His abilities, industry, and influence were employed, without interruption, to the last hour of his life to give stability to the liberties of his country, security to its landed property, increase to its commerce, independence to its public councils, and concord to its empire: these were his ends. For the attainment of these ends his policy consisted in sincerity, fidelity, disinterestedness, and constancy. In Opposition he respected the principles of Government. In Administration he provided for the liberties of the people. He employed his moments of power in realizing everything he had professed in a popular situation, the distinguishing mark of his public conduct, reserved in profession, secure in performance, he laid the foundation of a solid confidence. The virtues of his private life, and those which he exhibited in the service of the State, were not in him separate principles, his private virtues, without any change in their character, expanded with the occasion into enlarged public affections. He was devoted to the cause of freedom, not because he was haughty and intractable, but because he was beneficent and humane. A sober, unaffected, unassuming piety, the basis of all true morality, gave truth and prominence to his worth. He died at a fortunate time, before



he could feel by a decisive proof that virtue like his must be nourished from its own substance only, and cannot be assured of any external support. Let his successors, who duly behold this monument, consider that it was not built to entertain the eye, but to instruct the mind. Let them reflect that their conduct will make it their glory or their reproach. Let them feel that similarity of manners, not proximity of blood, gives them an interest in this statue.

Remember ! Resemble ! Persevere !

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Estimable readers ! is not this a very fine epitaph ? I would that all our statesmen could deserve such an one. In the main it is true. Of course it was to be expected that the fluent and rather gushing Burke would not spare a little butter. I should like to see some one arise now who could look after "the security of landed property," at the same time that he provided for the safety of tenant's capital. The great question of the day, in my opinion, are those of the rights and the duties of property ; the relationships of the owner of the land toward the occupants, and the treatment of the labourers by the tenants. These questions must be answered speedily, and I hope that during the recess it will become patent to those who govern the Councils of the nation that the question of land and labour is more worthy of consideration, more imperative in its claims than any hair-splitting on the question of education. There is one thing, I do trust that, if I am spared to next session, I shall not have to weary my old bones twice in a railway journey, as I had to do last year in search of a discussion on Messrs Howard and Read's Landlord and Tenant Bill "for nought and in vain." I am sometimes so irritated when I read these woefully long discussions in the House of Commons, which are all "sound and fury, signifying nothing," that I am tempted to exclaim with the Poet Laureate—

Ah ! God, for a man with a heart, head, hand,  
Like some of the simple, great ones gone  
For ever and ever by,  
One still strong man in a blatant land,  
Whatever they call him what care I ?  
Aristocrat, democrat, autocrat—one  
Who can rule and dare not lie.

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We are not much exposed to chicken cholera in this country, but is within my recollection

that we have suffered from it. In America it appears that the disastrous disease is much more frequent than it is with us. Here is what Mr R. Knapp, in the *Atlanta Sun* gives as a perfect cure for it :—"In your issue of this morning you ask for a remedy for chicken cholera, now so prevalent in this city and country. I have found a mixture of 2 ounces each of red pepper, alum, rosin, and sulphur, to be an infallible remedy for this scourge. Last summer I lost more than fifty common fowls from cholera, my buff Cochins not being at all affected. When glancing over the columns of the *Rural New Yorker*, I chanced to see the above mixture recommended, and tried it, mixing one tablespoonful in three pints of scalded corn meal, and though several fowls were in the last stages of the disease, they recovered, and I have not lost a chicken since. In severe cases I would advise giving about one-third of a teaspoonful in a meal pellet to each fowl every day till well."

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Although my eyes, like those of Hood's needle-woman, are weary and worn, and my spectacles don't seem now to have their usual magnifying and clearly defining power, I must try to copy the following, which is from an American paper also. It is headed, "A Caution to Farmers—Hemp :"—"The other day (Sunday evening it was) two of our most prominent hemp manufacturers were observed to be holding a very earnest conversation, and the interchange of knowing glances were frequent. In their enthusiasm they did not take sufficient precautions to keep from being overheard, and so a friend of ours happened to catch these words, as they fell from those devout lips, 'You have the money, and the understanding is that we will stand firm at *four*—there must be no flinching.' We want Granges in this vicinity to put a stop to such rascality and rings. Hemp is now everywhere worth 5 dols., with a decidedly upward tendency." This is surely very bad ; but are there not similar things done on the Sabbath in our own country ? I don't ask for information.

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I have not been at Barnet for goodness knows how many years. Very likely I should not have been there on the 4th of last month, had I not seen a paragraph in the *Pall Mall Gazette*. I don't know your own private sentiments, Mr



Editor, but I think, on the whole that it is rather a clever paper. A trifling too bumptious perhaps at times, but then you see if any concern starts with "a great to-do," it is almost essential that it should make good its pretensions. A paper 'written by gentlemen for gentlemen' occasionally exceeds the bound of gentlemanly language. But, bless my heart! this has nothing to do with the subject I was going to tell you about. To prevent me wandering any further, I shall clip out what I read in the *Pall Mall*. Here it is—no more beating about the bush:—

BARNET FAIR.—One of the most disgraceful scenes that occur in this or any other country in the world is to be witnessed this week within a few miles from London, and at Barnet Fair all the ruffians and thieves who are not immediately "wanted" by the police will assemble for their annual saturnalia. If any one wishes to see some of the worst features of English life, he has only to visit Barnet, where vice and brutality in their lowest forms reign triumphant for three days, and he will be thoroughly satisfied. But that notorious abuses are favoured with exceptional longevity it would be a matter of wonder that Barnet Fair was not long ago abolished. Its evils are so notorious, and it is such a public scandal, that sooner or later some steps will probably be taken to put an end to it; in the meantime, it is to be hoped, an effort will be made by the authorities to check, if not to prevent, the atrocious cruelty to which animals are subjected at this fair. It cannot be right that dozens of burly ruffians should be permitted to knock about diminutive ponies with heavy bludgeons; yet this is one of the favourite amusements of the revel, and there are not two opinions out of horse-coping circles that the time has almost arrived when this practice, at all events, should be discontinued.

I did not see any of this ruffianism which the *Pall Mall Gazette* describes. Quite the contrary, I saw a lot of my old friends who did not seem to think it necessary to leave their watches at home, nor to keep the guarding jewellery out of sight. Many of their manly bosoms glittered with gold, and none of the "light-fingered gentry," so far as I saw and heard, attempted to interfere. It is a queer place, and a lively one at fair times, this little rural retreat of 3000 inhabitants. The great desideratum of everybody is the possession of an ash plant. It is not unnecessary, perhaps, in the midst of so many horned cattle and horses. The wands are not dear, you can have a very supple one for a penny, and sellers thrust them into your hands willy nilly.

There was a great deal of shouting at the fair, which I thought was fully as large as any that

I have been at. It is a pity that the animals are scattered over so many fields that the distances between one class of cattle and another are so great. But I do not well see how it can be helped. The difficulty of getting information, however, is vastly increased, and then there is no way of getting the exact numbers stanced. The men at the gates know less than you can fish out yourself. The view from the top of the hill is very fine, embracing, as it does, a beautiful champaign country of 8 or 10 miles radius. There is a great deal of larking and half good-humoured chaffing going on at this point. One old lady, whose theory of temperance was not carried out by her in practice, was loudly declaring that the people who visited Barnet on these occasions were thieves with an adjective we care not to use. "What are you doing here then?" asked a waggish old man at the irate old lady, "'Cause I live here," said she, "and the rest only come here to cheat and run over folks that live at Barnet." "You," replies her tormentor, "you looks more like a thief than a horse." "Would you like to feel this?" says the old woman, brandishing her stick, which was a heavy one. But I leave and have a look at the Welch runts, and then pass to the shorthorns and the Scotch.

The shorthorns, as a rule, were good, and so also the Welch beasts. The Kyloes were in excellent condition, but rather, as it seemed to me, diminutive. The Herefords were in great form and the juicy little Devons shewed well. Trade, however, was very slow and prices dear. Buyers evidently did not care to give what sellers were asking, and sellers having two days more before them did not care to part. There was a good display of horses, and the prices were high. In the equine, as in the bovine race, the trade was rather dragging on account of the high sums sought. Sheep did not make quite so much as their owners expected.

The weather at the fair was pleasant until the afternoon, when heavy showers came down and sent all who could manage to get away from the fields into the public houses, which did a rousing trade at highly remunerative prices. Barnet Fair is a sight worth seeing by those who have never been there.

Farming accounts are too little looked after, I think. I think the following which I have clipped from an American paper about agricultural debits and credits may interest some of your readers:—



## DEBITS.

1. The first cost of the farm, or its true value as near as can be estimated at the time of commencing business.

2. The cost or estimated value of all stock and implements for executing the work, such as horses, wagons, ploughs, tools, and implements—indeed, everything that costs or is of value to the owner.

3. The cost or value of all household goods, such as furniture, utensils, &c., including wearing apparel, bedding, and any articles of food on hand.

4. The cost of seed, and the cost of all hired labour, except that of the farmer and members of his own family.

5. The cost of repairs of tools and implements, and the price of additional ones during the year.

6. The value of all other expenditures, such as food, clothing, conveniences, &c., outside of the products of the farm.

7. The market cash value of all articles used and consumed by the family, which are produced on the farm.

8. All annual taxes and interest on his farm and personal property which the farmer actually pays.

## CREDITS.

The following items should be placed on the credit side of the account :—

1. Cash received for all sales of farm products, and any other articles belonging to the farm, during the year. (When an exchange of farm products are made for other articles of use

or consumption, and no money, or a part only is received or paid, the articles exchanged should be charged and credited at their cash value.)

2. At the close of the year, an inventory of everything the farmer possesses pertaining to the farm should be taken, and placed on the credit side, estimated as near as can be at the then market value. Inasmuch as the real estate was debited at what it was worth at the beginning, it should now be credited at its present value. The same principles should be applied to live stock, tools, implements, household goods, farm products on hand unsold, and everything else of value, and be credited at what, in their present condition, they are worth. It will also be proper to credit the value of all farm products consumed by the family as charged, as they were evidently articles of value produced by the farm. The difference between the aggregate debit and credit now will shew the gain or loss.

To debit the estimated value of the time and labour bestowed by the farmer and members of his family I consider erroneous, for these constitute in a great measure his profits. As well might the shoemaker say, "I have worked all day in making a pair of shoes, which I sell for 2 dollars, but as my time and labour are worth 2 dollars, I have made nothing," which is evidently absurd.

Neither should the interest on his capital be charged, any more than a merchant charges the interest on his stock or merchandize.

## Our Library Table.

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*Suttons' Autumn Catalogue of Fresh imported Bulbous Flower Roots, Plants, and Seeds.* Sutton & Sons, Royal Berks Seed Establishment, Reading.

IN the getting up of their catalogues, the Messrs Sutton & Sons invariably exhibit good taste. The outside cover of the *brochure* now before us is chaste and elegant, the contents condensed and well considered. There is not much waste of words in the

bulb, and then goes on to speak of "potsherds and nodules"—phrases which, we hardly think, many readers will understand. We select for illustration the *lilium auratum* and the *gladiolus*. About the former we read the following in the Catalogue:—"This, the grandest of all the lily tribe, is as hardy as our common white lily, and like it will grow with vigour in good loam, though, in common with the



*Lilium auratum.*

description of the various articles which are supplied by the firm. They are to the point. The original article on the cultivation of the hyacinth, however, is rather long-winded, and the writer seems fond of big words. He scarcely seems to appreciate the fact that all people are not so well versed in horticulture as he happens to be. In telling us about the soil suitable for hyacinths, he says truly enough, that "a rich light soil is indispensable" for the growth of this

rest, it loves peat. Since it has been cheap, it has been plentifully planted out, and proves to be a remarkably beautiful, and indeed noble border flower; but its distinctness will always ensure it a high degree of favour as a conservatory plant. When grown in a pot, the best soil is sandy peat, but it will flower finely in a rich light mixture, such as fuchsias require. It is advisable to begin with the smallest size pot in which the bulb can be placed, and then to shift to



larger and larger pots as the plant progresses and the flower-buds appear, when, of course, there should be no further shifting. In respect of temperature, this is an accommodating lily; but, as a rule, a cool house is better for the plant than one which is maintained at a high temperature. The supply of water should be plentiful during the growth and flowering, but should be reduced when the flowering is over." About the gladiolus we have the following interesting and useful information:—"It should be clearly understood that



Gladiolus.

the gladiolus is a hardy plant, because, as it rivals the tulip in variety and splendour, and flowers at a time when nothing else of the kind is obtainable, the fact of its complete hardiness literally doubles its value, for it directs us to leave the bulbs in the open ground, where the circumstances are favourable for their preservation, and thus relieves us of a considerable amount of anxiety and trouble. The next thing to be clearly understood is, that it is not prudent to leave a valuable collection of gladioli in the open ground during the winter where the soil is heavy and damp, or the locality particularly exposed to trying weather. The gladioli—that is to say, the finest

hybrid varieties—are about as hardy as the hollyhock, and where the last will winter safely in the open ground, the first may be left out without a shadow of misgiving. The gladiolus requires a light, rich, well-drained soil. Vegetable mould is particularly favourable to its growth, and peat is one of the best possible soils for it. When grown in pots, a light mixture, rich in manure, must be provided; but when planted out, any good garden soil, well broken up and manured with mellow soil from an old hot-bed, and leaf-mould if it is obtainable, will answer admirably. When a succession of gladioli is required in the flower garden, several batches should be potted from December to March, and a final planting should be made in the open ground in April. The potted bulbs should have quiet frame culture, and be well hardened off and planted out in May. If carefully handled, the forwardest will flower almost immediately after being planted, and will be quickly succeeded by others, and the display will be sustained until the days decline in autumn. They should be taken up before the leaves have quite perished, for the young bulbs or corms are apt to make roots prematurely, teaching us, that if we could always allow them to remain in the ground, they would be growing at the very time when our store bulbs are dried up in drawers and bags. The gladiolus is adapted for many important uses. To supply cut flowers it is invaluable, and should be plentifully grown in the reserve garden for that purpose. It associates admirably with dahlias, hollyhocks, pentstemons, and phloxes, in the furnishing of clumps on the lawn and in the mixed border, and it is equally at home and in perfect harmony with surroundings when planted in the front of the American beds, and on the margin of the mixed shrubbery.

*Carter's Flower Roots, Fruit Trees, and Roses, 1873.*

James Carter, Dunnet, and Beale, Seed Growers and Nurserymen, 237 and 238 High Holborn, London.

THIS is a well arranged and well got up catalogue, and the engravings with which it is profusely illustrated, are true to nature. The letter-press is concise, and the directions as to the cultivation of the flowers and plants practical. We select for illustration the double Persian ranunculus, and *tropaeolum polyphyllum*. About the ranunculus in general we find the following excellent hints to growers:—

"The best soil for the finer sorts is a retentive loam from the surface of a good old pasture, with the addition of some well-rotted cowdung, peat, leaf mould, and silver sand, all to be well incorporated before using. It is desirable that the rich soil be placed a few inches below the tubers, and these to be covered with loam and silver sand. Perhaps the best time of planting is the month of February, as they are somewhat tender, and, if planted too early, might start from the ground before the danger of severe frost



is over, when they would require a great amount of extra care in protection, or there might be a risk of losing the bloom. The ranunculus requires a firm



Double Persian Ranunculus.

soil, and it is desirable to work up the beds some time before planting, in order that the roots may be placed firmly. For planting select a fine day, and stir the



*Tropæolum polyphyllum*.

surface of the beds to a depth of three or four inches; draw the drills out at about five inches apart, sprinkle a little sand along them, and insert the bulbs at a

distance of about four inches, pressing each root gently into its place; then cover with silver sand, and level the beds in the usual manner. If severe frosts come on soon after planting, cover the beds with straw or mats; when the foliage shews fairly, fix the soil about them, and even tread or rake the intermediate spaces. Regarding the *tropæolum polyphyllum* we read the bulbous kinds delight in rich free loam, leaf mould, and sand. The best kinds for pot culture are *azureum*, *Jarratti*, and *tricolorum*. They should be potted in autumn, and allowed to make way all through the winter in an airy greenhouse, the stems being trained up light trellises of some kind. After the blooming season, the bulbs should be allowed a rest of a few months. *T. polyphyllum*, a very showy hardy tuberous-rooted plant of procumbent habit, from the Caucasian Mountains, produces tresses 2 feet long of fine golden flowers in June, handsome glaucous foliage. There are generally about thirty to forty blooms open on a stem at one time.

*Downie, Laird, & Laing's* (Stanstead Park, Forest Hill, London, and South Frederick Street, Edinburgh) *Catalogue of Dutch Flower Roots* has a thorough business look about it. "The florists to the Queen" do not make much show. There is absolutely not a single illustration in the work, but their selection of roots amply testifies that they are well entitled to the honour the Queen was long ago pleased to bestow upon them. Their list includes all the newest and best roots. We extract the following regarding the culture of the hyacinth:—"October and November are the proper months for planting in beds and pots, or placing in glasses to flower in water; and if for early flowering in pots, they should be put in about the middle or towards the end of September. In beds, plant in rows 6 to 8 inches apart, the same distance from each other in a row, and cover at least to the depth of 4 inches. Should the winter be severe, lay over the beds 3 inches or so of sawdust or old tan, and remove this early in spring. For pot-culture, plant in deep pots used for this purpose, leaving merely the top of the bulb uncovered; and if wanted for early flowering, plunge them in tan-bark or ashes,  $\frac{1}{2}$  foot below the surface, until the leaves have grown 3 or 4 inches. When removed to the forcing pit, they should be shaded for a few days, and not exposed too soon to the light. The soil best adapted for them is a compost of equal proportions of fresh loam, leaf-mould, and sand. To flower them well in water, the glasses should be filled so as merely to touch the base of the bulb; they ought then to be put into a dark and cool situation, such as a closet or similar place, until the roots reach 3 inches or so down the glass, when they may be taken out to the light, at which time the water should be changed, and afterwards when it becomes discoloured. The bulbs ought to be well cleaned when changing the water, and



washed over occasionally, using for this purpose a soft brush. To give colour to the flowers and vigour to the plant, a small quantity of a weak solution of guano and salt, put into the water twice a week, is recommended.

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*Benjamin S. Williams's* (Victoria and Paradise Nurseries, Upper Holloway, London) *General Bulb and Fruit Tree and Rose Catalogue* has also reached us. Its contents are very full and admirably arranged, alike in the root and the rose departments. The annexed passage about the treatment of tulips will be useful to many of our readers:—"The early tulip is an essential flower in any spring garden. Owing to the spring frosts we have been in the habit of having of late years, bedding plants cannot with safety be planted out till the end of May; therefore, during two months of generally bright weather, the beds of our flower gardens would present, were it not for the use of spring flowering bulbs, a bare and untidy appearance. Happily we can fall back upon their great aid, and of which none are more fitted than the tulip: their glowing colours, combined with their diminutive growth and easy culture, should secure them a place in every garden, large or small; and

again, for window, drawing-room, or conservatory decoration, they are very applicable. By planting the Van Thols early in September, and when well rooted placing them in a warm pit or house, flowers may be obtained by Christmas. The best time for planting in beds and borders is early in November, after the soil has been stirred to some depth—for all bulbs do better in a deep, loose soil; and this applies more particularly to tulips than any others. Plant them 3 or 4 inches below the surface, and about 4 inches apart. For window or drawing-room decoration, rustic pots, vases, and pans, are very handsome and suitable, filling them with moss, sand, or soil, and placing the bulbs on the top. Soil with a covering of green moss is preferable. After planting, place them aside in a dark room or cupboard till well rooted and have commenced growing. Gradually inure them to the light before removing into the room where intended to flower. Water when necessary, and let them have air frequently. The earliest varieties, and those best adapted for in-door growth, are the Duc Van Thols (*Tulipa suaveolens*) double and single, the Tournesols, Rex Rubrorum, Vermilion Brilliant, and Pottebakkers, the single Van Thols being the earliest and best."

## The Garden.

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### HERBACEOUS AND ALPINE PLANTS.

**CAMPANULA** (Bell-flower). — This highly ornamental genus of plants contains a great number of hardy perennial species. No class of plants is easier to cultivate; they are amongst the finest plants known for the mixed border, grouping or massing in the flower garden, and may in some instances be used with good effect as edging plants. The taller species may be used to enliven the shrubbery, and are not to be despised as pot-plants for the ornamentation of the greenhouse, &c. The species and varieties here enumerated are not by any means an exhaustive list of the ornamental kinds, but such as are most commonly in cultivation, and which may be bought at a cheap rate: even a condensed list is a somewhat lengthy one. The culture applicable to each species will not be given with the description of it. The following hints will, however, serve generally for the whole list, cultural notes being added only in special cases. They are easily propagated by parting their roots in autumn, and will thrive in any ordinary garden soil or situation. Although the method of propagating by offsets is the one most generally adopted, there can be no question but that the finest flowers are those produced by plants three and four years from the seed bed. Strong seedling plants always produce the finest flowers, and produce seed much more freely than divided plants, and should receive attention in favourable seasons so as to secure good seed. Constantly increased by division year after year, they have a tendency to become barren. This remark also holds good with plant life in general; every subject in nature should be reproduced

from seed within a given period, otherwise an abortive and impaired, if not a diseased, constitution is sure to be the consequence.

*C. alpina* (Alpine Bell-flower).—A fine early-blooming species for rock-culture, with simple weak stems from 8 inches to 1 foot long, loaded the whole length with axillary, solitary, blue flowers, produced from May to July. Native of the Swiss Alps.

*C. barbata* (Bearded Bell-flower).—The whole plant is covered with soft hairs; the root-leaves in clusters, oblong-lanceolate, with stout upright stem, varying from 6 inches to a foot or more in height, according to strength of plant, forming a kind of loose spike with large nodding blue flowers; blooms in June and July. Native of Italy.

*C. bononiensis* (Panicked Bell-flower).—This is a fine species for mixed border or shrubbery decoration, robust and upright in habit, attaining a height of 2 feet and upwards, forming a long spike of violet-coloured flowers; blooms in July and August. Native of Austria and Italy.

*C. carpatica* (Heart-leaved Bell-flower).—This is a dwarf compact-habited plant, admirably suited for rockery culture, where its large blue flowers are freely produced during the whole of the summer months, and may be used with good effect in the flower garden in lieu of the tender blue bedding plants now in use; it will grow in any except very damp cold soils. The varieties (alba and bicolor) are equally valuable decorative plants. The species is a native of the Carpathian Alps.

*C. fragilis* (Fragile Bell-flower).—This is a most lovely species for rockery culture, of weak pendant habit, extremely brittle;



consequently not suited for exposed situations. Both stems and leaves are numerous; flowers, according to strength of plant, two, three, or more together at the ends of the branches, of a lively blue colour. The white-flowered variety of this is equally pretty; they bloom from July to September. Native of Italy.

*C. garganica* (Gargano Bell-flower).—This is also a very pretty little blue-flowered species. There is a white-flowered variety partaking of the same general habit as the last but not brittle, and suited for more exposed situations on the rockery; blooms from May to July. Native of Monte Gargano, whence its name.

*C. glomerata* (Small or Clustered-flowered Bell-flower).—This is one of the best for shrubby culture; if treated to a southern or western aspect, it grows from 2 to 3 feet high; flowers puce colour, in terminal clusters. The double-flowered form of this is very beautiful, as also the white variety. There are other varieties which differ little from these natives of sunny Alpine pastures and soil of a calcareous nature in many parts of Europe.

*C. grandiflora* (Great-flowered Bell-flower).—A very fine erect thick-stemmed species, fine for shrubby decoration, growing from 1½ to 2 feet high, according to soil and situation; flowers blue, generally terminal, but with sometimes one or two from the axils of the upper leaves; the white-flowered variety partakes of the same general habit. There are double-flowered forms of both varieties, also a striped blue and white variety. They are seldom in bloom until September. Native of Siberia.

*C. latifolia* (Broad-leaved Bell-flower).—This is a stately native species, growing 3 feet high in good soils, with large deep blue flowers; fine for large shady shrubberies and in open woods; will grow in almost any soil. There is also a white variety which is a useful contrast for the same uses as the species, which is commonly known as Giant Throat-wort. Indigenous to Continental Europe.

*C. Media* (Canterbury Bells).—This is strictly a triennial species, and triennials are as a rule not noticed in these pages, but the various colours of blue, rose, purple, white, &c., are so fine as to make this one of the finest subjects for mixed border culture. They should be in all collections. The seeds should be sown in spring in a small bed of good light garden soil, and in the following autumn be transplanted into blooming quarters; the following summer they will bloom to seed, after which the plant will rapidly decay. The flowers are borne on branching peduncles from the axils of the leaves, diminishing gradually upwards, thus forming a sort of pyramid; the flowers are large and make a fine appearance. The two varieties, *C. calycanthema*, blue, and *C. calycanthema alba*, recently introduced and now offered at reasonable prices, are, if possible, improvements on the present type. The flowers in these are more terminal, the calyx more extended, and forms a complete circle or cup-like appendage to the base of each bell. The profusion and size of their blooms in relation to their aggregate growth is perhaps unequalled by any other of the 200 fine species belonging to this noble genus. The species inhabits woods in southern Europe, grows about 1½ or 2 feet high, and blooms in August and September.

*C. nobilis* (Noble Bell-flower).—This is an erect strong-growing species with long pendant tubular flowers, of a pale purple colour, fine for shrubby or mixed border, growing from 2 to 3 feet high in good soil. Flowers from May to July. Native of China.

*C. persicifolia* (Peach-leaved Bell-flower).—This is one of the finest, and, taken with its varieties, of single and double blue and white flowers (particularly those known as *C. persicifolia coronata alba*, and *C. persicifolia coronata cœrulea*), combined with its early and long-flowering propensities, constitute it one of the most useful and hardy perennials for the flower garden. The broad flowers are arranged in a close raceme along the greater part of the stem, and are

produced from June to September. Native of many parts of Continental Europe.

*C. pumila* (Dwarf Bell-flower).—A pretty little blue-flowered species. This and its variety with white flowers, are extremely neat, compact, and useful plants for many purposes; forming dense masses in almost any soil or situation. Flowers freely from June to September.

*C. pyramidalis* (Pyramidal Bell-flower).—This noble plant, forming a connecting link between a perennial and biennial, is included in this list, not only because it is a plant for the villa gardener, but because it should be grown extensively in all gardens. There are possibly few plants which create a finer effect with less attention than this,—useful alike as a pot plant, and for any position in the open garden where a tall subject is required. It grows from 4 to 5 feet high, paniced with short branches from top to bottom, on which the flowers are produced, for more than half the length of the stem. These paniced branches decrease in length gradually upwards, which give the plant its pyramidal appearance. There are both blue and white varieties of this species, and both should be grown for contrast. They bloom during the months of August and September, and continue a long time in beauty if the weather is favourable. The supply of young plants must be raised biennially, more especially for pot culture. This is often done by offsets, as being the most convenient way, but those raised from seed are always stronger and more productive of bloom. The seed is best sown in boxes in autumn, and stood in a cold frame for protection until spring, when a bed of light rich sandy soil (without manure) must be prepared for them in a sheltered situation in the reserve ground, and carefully planted about 4 inches apart every way, receiving water only when needful until autumn, when after the leaves are decayed, the bed should receive a slight covering of some protecting material until the severe frosts are over. The following spring the bed should be carefully

cleaned, and receive a top-dressing of sand and loam. Should the plants have made satisfactory progress by the following autumn, they will require more room, and should be replanted into fresh beds of prepared earth at a distance according to strength of plant, giving the same protection during winter. The following season some of the strongest may be removed to blooming quarters, which should be a warm aspect. A few of the stronger crowns may now be potted, and the remainder left to be protected as before. A regular succession of plants may be kept up by sowing every second year, if the above instructions are carefully carried out. The potted plants must receive the protection of a cold frame, but slightly watered during the winter, and if well managed will bloom the following autumn. By a regular course of greenhouse culture we have bloomed these regularly the third season from the seed, but by this process much valuable space is occupied for a long time. It is a native of Carniola.

*C. laciniata* (Lacinated Bell-flower).—This fine species is of somewhat recent introduction, but is already offered at a price within the reach of every one. It assumes a bushy habit, and grows about 2 feet high, the stout branching stems being terminated by large blue flowers which are freely produced during the months of June or July. Being a native of the Grecian Archipelago, it requires a sheltered situation.

*C. rapunculoides* (Creeping Bell-flower).—This is a very showy native species, also of Continental Europe generally, once much cultivated in gardens not only for the beauty of its flowers, but the roots were in high repute for salads, especially in France. They were boiled tender and eaten cold with vinegar and pepper, in the time of Parkinson. But like many other herbs it has fallen into disrepute. It is also troublesome as a border plant, owing to the rapidity with which it spreads itself by its underground stems. Few plants are, however, better suited to the semi-wild garden, or open places in woods. It



produces its large, upright, leafy racemes of bluish-purple flowers freely during the months of June, July, and August.

*C. rotundifolia* (Harebell or Round-leaved Bell-flower).—This is thought by many to be the real Scottish Bluebell; but this is mere conjecture, as the plant is pretty generally distributed, not only throughout England and Wales, but also throughout Alpine Europe. It is a beautiful plant under cultivation, and succeeds well in almost any soil or situation; is well suited for rockery culture, flowers freely during the months of June, July, and August; flowers blue, but occasionally of a whitish, or pink colour, in its wild state. There are also some fine hybrid varieties equally dwarf and graceful, with double flowers called *Campanula rotundifolia Soldanelliflora* and *Campanula rotundifolia Ranunculiflora*: they have all the same creeping habit, and are well worthy of extensive cultivation.

*C. sarmatica* (Bottony-leaved Bell-flower).—This is a very distinct and useful mixed border plant, with large pale blue flowers, on

racemes about 2 feet high, blooms in June or July. Native of Siberia.

*C. turbinata* (Russet Bell-flower).—A dwarf, compact-growing species, having short erect stems, with large solitary bell-shaped flowers, of a deep purple colour; nearly allied to *C. carpatica*, but a much finer species; there is also a variety with white flowers, and a hybrid form called *floribunda*, in every respect an improvement on the typical species, flowers blue. They bloom during June and July. Introduced from the mountains of Pennsylvania.

*C. articefolia*, syn. *Frachelium articefolium* (Great Bell-flower or Nettle-leaved Throatwort).—This is a very fine species, either for the mixed border or shrubbery, with erect stems 3 to 4 feet high in good soil, and producing from three to six large nodding blue flowers, on terminal leafy racemes, during July and August. The varieties with double white, double blue, single white, and blue and white flowers, are all very fine. Native of most parts of Europe as well as of Japan.—*Robert Bullen, Glasgow Botanic Garden.*

## NEW AND RARE PLANTS.

### ALPINIA VITTATA.

WE are indebted to Mr Bull for the following excellent illustrations of new and rare plants. *Alpinia vittata* is an acquisition because of its distinctness from most other plants that have been recently introduced. Its reed-like stems, with its sheathing leaves of green and white, single it out as an ornamental plant of a high order. Once in possession of it, it grows well, sending forth shoots from the base in underground racemes. It is a plant suitable for the temperate house, coming from the South Sea Islands, it consequently comes in well for general collections. Mr Bull thus describes it in his catalogue:—

“As a variegated plant it is very striking, the underground rhizomes producing erect pseudo-stems formed by the clasping sheaths of the leaves, and these supporting several leaves which are 6 to 8 inches long, elliptic-lanceolate, tapered off to a long fine point, and also removed gradually towards the sheathing base. They are pale green, and marked by broad stripes of dark green and of creamy white, running off from the midst in divergent lines, corresponding to the venation. Being variously marked, the leaves have a pretty effect, the yellow colour in some, and the pale green and dark green in others, here and there preponderating, forming a delicate contrast.”

CARICA AURANTIACA.

This plant, of which there is an illustration on p. 305, is more suited for choice than for

readers' notice. The introducer thus speaks of it :—

“ This plant, a native of Bogota, has stout,



*Alpinia Vittata.*

general collections. It is nevertheless a most interesting addition to our fruit-bearing shrubs, and as such we have to commend it to our

fleshy, erect stems, and long-stalked palmately-parted smooth leaves of a soft herbaceous texture, the centre lobe of which is pinnatifid,



the lobes appear from the sketch of the plant to be about  $1\frac{1}{2}$  inches broad, the fruit is globose, a little over 3 inches in diameter,

*ALOCASIA ILLUSTRIS.*

This plant is one of the first of its group—first in point of appearance, and first of easy



*Carica aurantiaca.*

orange-coloured and orange-like in appearance; the plant is free in habit and of ornamental growth."

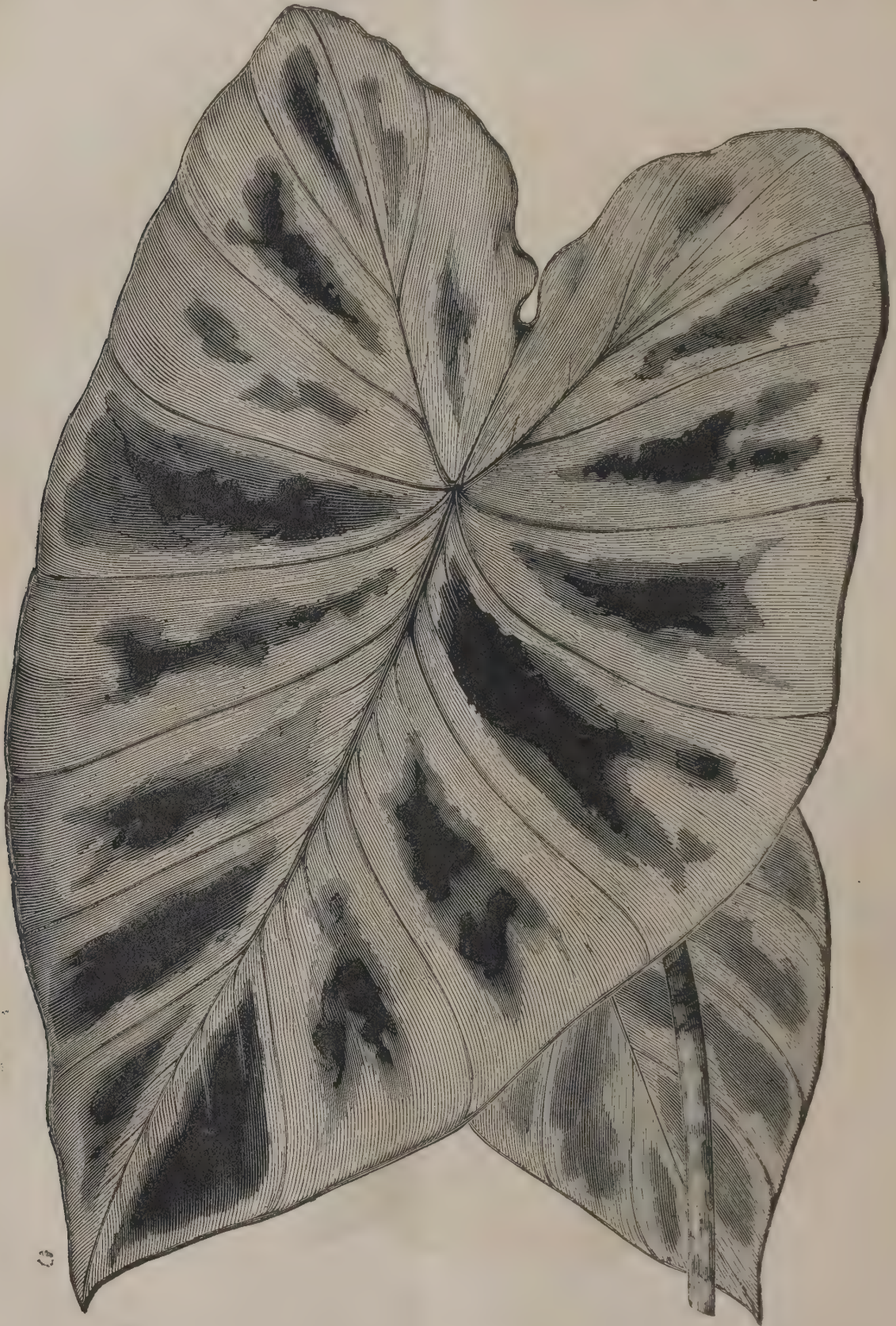
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cultivation. Alocasias generally are of slow growth, at least they are much slower in extending their dimensions than Caladiums,

X



but this one has a vigour that will tell in its cellent as it is, fails to do it justice. We have  
favour wherever cultivated. As we saw it in seen no novelty in this way that we have



*Alocasia illustris.*

Mr Bull's stoves, it looked quite a picture of taken so much to, and we vote it high com.  
beauty, so much so that the illustration, ex- mendation. It is thus described:—



"A free growing bold habited stove perennial, intermediate in its general aspect between *Alocasia* and *Caladium*. The leaf-stalks are erect, and have a brownish-purple marked between the principal veins by broad patches of blackish olive extending almost from the midrib to the margin, and forming a striking contrast with the brighter green



*Aristolochia galeata.*

ant, while the leaf-blades are deflexed,  $1\frac{1}{2}$  feet long, peltately attached, ovately sagittate, with blackish basal lobes rounded in front, with a small apiculate point, the colour a rich green

portions of the leaf surface. It is somewhat on the way of *A. Jenningsii*, but is of much larger and more vigorous growth, and of a brighter, less glaucous green."

## ARISTOLOCHIA GALEATA.

The *Aristolochia galeata*, although not of first-rate pretensions, will prove a useful addition to an intermediate house climber. It will be found to be better in a temperate than in a stove house, as most plants from Bogota have to suffer a considerable degree of cold. It is described as "a free-growing stove

climber, with terete stem and heart-shaped leaves, abrupt at the apex, and having a broad sinus at the base. The flowers are axillary, cream-coloured, reticulated with purplish veins, the tube ovate, ventricose, and abruptly curved, expanding into a two-lobed limb, which is 6 to 7 inches long, the upper lip shorter and rounder at the extremity."

*LE BUTT'S HAND DRILL.*

THIS little implement, introduced and manufactured by Mr J. Le Butt, of Bury St Edmunds, Suffolk, is now made



J. Le Butt's Hand Drill.

entirely from new designs, as our readers will see from the above illustration, one or two improvements are also at the same time intro-

duced. The rim of travelling wheel is conical instead of round or flat, as formerly made, insuring very steady travelling, so necessary in its use, and pressing the soil at the same time ready for the coulter, a result not to be obtained by wheels with flat and round rims, which must of necessity jolt up and down in passing over stones and lumps, thereby wasting half the seed. Another improvement is the attaching of a very light, self-acting harrow for covering the seed; and, altogether, it can now be said, to be one of the most useful implements all who possess a kitchen garden can have for putting in vegetable and other seeds.



## The Veterinarian.

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### CURABILITY OF PLEURO-PNEUMONIA.

WE believe there is much misconception on the part of those who undertake to publish the accounts of their many cures of contagious pleuro-pneumonia among cattle. It has not been sufficiently admitted that there are two forms of the disease known by this term: one by no means fatal, non-contagious, quite amenable to medical treatment, seldom continuing more than ten or fifteen days, and disappearing without making the animal less disposed to take on flesh and become fit for the butcher; the other fatal to the extent of 50 per cent. or more, highly contagious, and running its course in stern defiance of any kind of medical treatment yet known and practised.

Both, however, exhibit very strong particulars and points of identity, and from this much confusion has arisen, the slighter and curable cases having doubtless been taken for the contagious kind, and alluded to in the flaming published reports of remarkable cures. There is one special mark of difference between the two, which non-professional persons may observe as useful evidence in *post-mortem* examinations, which is the unusually large quantity of water in the chest. In simple pleuro-pneumonia, the lungs are more subject to active inflammation through their substance, and death really occurs from a want of proper circulation and aeration of the blood. In the contagious form the outer surface of the lungs is equally involved, but the whole process is of a passive or sub-acute form, and the usual presence of fluid in the chest produces absolute internal drowning or suffocation.

Simple pleuro-pneumonia is common in-

flammation of the lungs and pleuro or lining membrane of the chest, and usually gives way to the action of ordinary depletive measures. Contagious pleuro-pneumonia, on the other hand, depends upon the presence of some poison germ within the blood, the form and nature of which are not yet perfectly understood. Moreover, all the arts and measures science has suggested up to the present time have failed to reach and destroy it—therefore we have so far failed in finding a complete and certain cure for contagious pleuro-pneumonia.

Some time ago it was urged that carbolic acid had been proved to destroy the poison germ within the blood, and accordingly many trials followed; but success, if the results may be expressed by the term, was confined only to those animals which were put under treatment on the first appearance of the disease, and before any decided symptoms of alteration of structure had taken place. For the information of our readers, who may desire to make the experiment for themselves, we give the following particulars of the plan adopted:—The pure crystals of carbolic acid are dissolved in an equal quantity of pure glycerine: thus one ounce of acid by weight, is covered by one ounce by measure of glycerine, and when dissolved and thoroughly shaken to insure incorporation, the mixture is used at the rate of twenty drops night and morning, in a pint of water, in which a few grains of carbonate of soda or small lumps of soap have been dissolved. Another plan consists of suspending large pieces of cloth before the animals' heads, and keeping them saturated with a solution of carbolic acid

(impure kind), and the floors are covered with chaff, tan, or sawdust, which is also saturated with the same in the proportion of one part to forty or fifty of water.

In the estimation of some the burning sulphur is pronounced a perfect cure, but as stated in a previous article on this subject, we feel that much want of precision exists, as the results have not in the least warranted the conclusions arrived at.

As far as our experience has been extended, we view with extreme doubtfulness any announcement of a cure of pleuro-pneumonia by medicines at present, and rely more upon the efficacy of timely slaughter and segregation, with constant supervision of the latter, and regular disinfection of the premises and pastures. As long as a diseased animal is suffered to live, it becomes a positive poison manufactory, the breath and excretions being loaded with the germs of morbid matter which will poison the blood of every one in the same locality. When, therefore, one such exists, the sooner he or she is slaughtered the better, and the less likelihood there will be of others becoming affected. The next procedure is to separate the apparently healthy ones, putting them singly or by twos into temporary sheds, or improvised boxes, &c., at different corners of the pastures, and when among these any others indicate signs of approaching disease, they are to be taken out and quickly despatched to the butcher, in order to avoid loss as far as possible; and in large herds of fattening cattle, after the appearance of the disease, it would be a profitable course of procedure to mark off each week one or more as the state of the markets will warrant, until the whole are cleared.

By proper supervision this plan may be caused to produce the least inconvenience and loss. Pleuro-pneumonia, like all diseases of a contagious character, possesses a stage of incubation—a period before the appearance of any of the usual signs, dating from the time of contact with diseased animals, and amounting to two, three, or six weeks,

and it is now fully known that after positive infection—although the animal is in apparent perfect health—from the moment the poison has gained an entrance to the blood, a rise of the temperature of the body takes place,\* and continues through various gradations until other special signs are developed. The normal temperature of the body is 98 to 102 deg. Fah., the evening observations being marked by a slight elevation over that of the morning; and as soon as the blood becomes affected the temperature will rise to 103 deg. Fah. in the morning, and in the evening probably to 104 deg. Fah., or more, each day towards the end of the incubatory stage, as disease advances, shewing a marked elevation of temperature, and increase over the previous day. Such knowledge may now be turned to valuable account in the prevention of contagious diseases, while well-continued observations will enable the owner to single out from a number one or more which indicate approaching disease, and send it as valuable and perfectly sound meat to market.

In the segregation of animals there is often much want of care and thought evident, and from the wording of the law little choice is left for the owner. A clause in the Act of 1869 forbids the removal of any animal from among a diseased herd, and it amounts to nothing more than compelling the owner to expose all the healthy ones to the greatest risk; whereas, if it had said "separate from the diseased all the healthy as soon as possible," the chances are that many, if not all, might be saved from slaughter, and the owner from serious loss. In towns the dairyman has no alternative; he is shut in by houses and other buildings, none of which he can convert into quarantine quarters. If he has such, and were to remove them, a neighbour, or a policeman, is quickly down upon him for an infringement of the law,

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\* This subject has been fully discussed in a pamphlet, entitled, "The Thermometer as an Aid to Diagnosis," price 1s., published by A. Kimpton, 82 High Holborn; and Maclachlan & Stewart, Edinburgh.



and to his losses are added exposure, inconvenience, and further loss. The farmer, likewise, cannot remove his cattle from a shed or building to avoid one or more diseased, but if they are in the pasture, he has more means at his command. Although he may not remove them from thence, he can isolate them in small companies, and if he persist in careful

watching and strict observation, his losses may be reduced to a very trifling amount. The law on this point requires some alteration, and we are hopeful that as the subject is more fully known and appreciated, a closer attention will be paid to the suppression of contagious diseases generally, than has hitherto been the case.

### BLINDNESS.

**A**MONG the numerous maladies which seize upon our domestic animals at this season of the year, ophthalmia, or blindness, is not uncommon. Apart from the usual form of disease, which from its general character, mode of attack, and connexion with variable temperature, &c., is usually known as a cold in the eye, there is a variety of blindness which attacks frequently a great number of animals in the same locality during hot weather, and from the large area of country over which it seems to be spread, it is somewhat difficult for those unacquainted with medical science to reconcile their ideas with the assurance that such a disease is positively "not catching."

Certain conditions, however, are necessary to give rise to the form of ophthalmia we are about to notice, and hence we find that as seasons are not always of the same character, there are modifications of the affection. In moderately cool or gloomy weather, or during alternate hot and, showery days, the disease may not be seen; but if the sun continues to shine with great power and brilliancy, if rains are delayed, and worse still, if there is no shelter for the animals, blindness will often run rapidly through whole flocks and herds. Under these circumstances the grass is arrested in its growth, and speedily disappears; food becoming short necessitates the continued movements of the animals in search for it, and the eyes are exposed to the effect of reflected

light and heat, from which intense inflammation is set up, the products of the action occupying the whole of the interior and posterior chambers of the eye, obliterating the unction of sight entirely.

Although the present year has not been as remarkable as that of 1868 for a long continuance of Indian temperature, yet for a few days recently in certain districts, the effects were very severe, and this was most particularly felt upon the white clay, chalk, and light gravelly soils, as well as on the salt marshes where the light-coloured and bare sandy soil proved as equally powerful in transmitting injurious heat and light, and a number of cases of blindness have been reported. In the summer of 1868, numerous flocks of sheep were brought under observation, these having suffered very severely, and presented a most pitiable appearance by their inability to proceed without assistance, running against each other or the various objects which happened to be in their way.

There is, however, some difference between this form of blindness and that which happens late in autumn, in winter, or during the cold wet spring of the year. The summer blindness is wholly a result of the powerful rays of heat and light transmitted from the light-coloured soil, which is destitute of its usual covering—grass. If there is no opposition to the growth of grass, and the ground is well covered, no harm happens, the colour of such

vegetation being wisely ordered as a most useful and effective neutralizer of light. It is only after the soil is grazed close, and it becomes dry, hard, white, and hot by continued sunshine and drought, that such blindness comes on, and it rarely happens that few cases only are seen: the usual course is for the affection to spread over the whole of the parched-up and sunburnt district.

The treatment is simple, and generally very effective. It is best to remove the animals at once to a large barn or a number of sheds, and shut out all the light possible, but at the same time contrive to ensure the requisite air. This may be easily managed by improvising a number of narrow passages, constructed of tarpaulin, &c., and running at right angles with each other, for the purpose of ingress and egress on each side of the building. The next part of the proceedings is to feed on bran and sloppy food, in order to expedite the action of a moderate purge, which should be speedily given to each

animal. The eyes may be bathed with a solution of Goulard's Extract, or sugar of lead, or, what is probably better, arnica lotion, several times a day. On the third day after the administration of the purge, powdered nitre, in the proportion of half a dram to every pint of water allowed for drinking, will be found very useful at midday. Beyond this little else is required. The animals may be kept up probably a week or ten days, and if the hot weather subsides, rain falls, grass food becomes plentiful, and, moreover, if the sight is being rapidly restored, they may be gradually turned into the pasture again, not, however, without having secured ample shelter, to which they may resort in the event of any return of excessive sun and heat. The neighbourhood of a copse, an old building, or even a few hurdles packed with straw, so arranged that sheep may get beneath them, may avert serious consequences, and at this season should be highly esteemed for even a slight and temporary protection.

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### MEGRIMS.

**A**MONG equine animals the consequences of very hot weather are evident in an affection commonly known as megrims, the nature of which has given rise to much dispute. This may probably have arisen from the fact that certain horses have shewn symptoms of the affection totally apart from the influence of hot weather, and thus neglecting to seek out and identify the legitimate cause, false conclusions have been admitted.

The disease exhibits peculiar phases. Young horses are no more exempt than old or middle-aged ones. The severest exertion is no more likely to cause it in one than the slightest movement in another. In one animal the seizures may be slight—so transient that they may nearly escape observation, while in another the most violent paroxysms

are exhibited. We have seen a horse go along with every satisfaction for a few miles, then suddenly stop, stare about vacantly, and proceed again as if nothing had happened. Recently a friend was driving his favourite mare a few miles into Essex, when she suddenly pulled up, threw up her head and fell on her knees as if shot. In more violent cases the animal suddenly rushes off at an alarming pace, heedless of everything, pull as we may at the reins, and the mad career is only brought to a close by some dangerous and probably expensive freak, such as jumping into a shop window or down an excavation, if it happen to be in the way. Happily, however, the mad freaks are usually of rare occurrence, and frequent notice of slight attacks induces the owner—wrongfully, we must



state—to part from the animal, under the idea that “it is better to let some one have the trouble and risk with him.” Megrims is a form of epilepsy, and owing to the various conditions which may give rise to it, the attacks are modified, and display such a want of connexion, that considerable latitude is allowed for speculation as to their relationship or identity.

Among harness horses a common cause is said to be a tight collar, or one too large, being drawn upwards by the false position of the points of attachment to the traces, which, causing pressure on the jugular vein, prevents the return of blood from the head. The modern view, and doubtless the more correct one, is that the pressure from a collar really prevents the circulation of blood *towards* the brain by the carotid arteries, and this is supported by the generally accepted idea of the real nature of epilepsy—an imperfect nutrition of the great nervous centre, the brain. Megrims does not usually affect harness horses with properly-fitting collars more frequently than those never used in harness at all, hence we must look farther for the cause. In animals that are subject to this affection it will be found that a very weak, and even slow circulation is present; there is also liability to congestion of the liver, and during any extra exertion the result may be obvious in slight *vertigo*, or in accordance with condi-

tions, it may merge into a paroxysm of uncontrollable fury.

Nothing in the way of surgery or medicine should be done for any attack of megrims. The owner must be deaf to every recommendation but one, that is, to take warning by the first attack and resolve to use the animal no longer until the causes are thoroughly ascertained, and proper medical treatment instituted. If the animal does not lose the power of standing, let him be led home at once; if he falls, have the head secured by sitting upon it until the attack is completely over and sensibility has returned, when he is to be taken home as speedily yet quietly as possible. Medical treatment consists of promoting proper action of the bowels, and thus reducing as well as dissipating congestion of the liver. The functions of the digestive organs must be afterwards encouraged by regular exercise, and want of general tone secured by the administration of various tonics and use of wholesome as well as easily digested food. If any faults are attached to the collar or harness, they must be remedied; and with the measures advocated little fear need be entertained of danger arising afterwards. It is only among those animals that are constitutionally wrong, and in whom improper food, idleness, irregular exercise, and probably needless drugging, singly or combined, work their baneful effects.

*CONTAGIOUS DISEASES IN CATTLE.*

THE origin of contagious diseases among our cattle has been for a long time a subject of much comment and heated controversy, and although many undoubted facts have come to light during the past year or two, there is yet much unwillingness to see things as they are, and accept plain reasons for deciding simple questions on the matter, and thus pave the way for much needed reform. Previous to the year 1842, such visitations of disease as we have since that time experienced, were almost unknown. True it is, that by some unlucky chance—either by a few hides, or two calves, the plague gained an entrance about a century ago, and, spreading with alarming rapidity over the length and breadth of the land, destroyed many thousand head of cattle. But by the aid of decisive legislation it was speedily stamped out, and since then the fact was to be found only in the records of history. Until 1866, the matter lay concealed; there was no one alive that could recognize the complaint from previous acquaintance with it in this country, and, had it not been for the records of which we have already spoken, the impression might have been established that the malady was not only new to the country, but that also it was due entirely to some mode of management, or *mis-management* rather, kind of feeding, housing, want of drainage, &c., &c. However, the records were of valuable service in at least shewing that a disease, identical in every respect, had once before visited our shores, and moreover, they shewed that the same affection was identical with the contagious disease then raging among the cattle on the Continent. Besides there were personal observers, who, by acquaintance with such maladies in the countries where they originate, and from which they are never absent, at once, and without any hesitation, spoke in favour of

their foreign origin and contagious nature. Yet, notwithstanding the rapidly fatal character of cattle plague, the alarming rapidity with which it passed over the country after a constant and unerring observance of an incubatory stage, together with other symptoms which only betoken contagious diseases, many refused to entertain any certain idea of either of those conditions. It was only after the lapse of time, and farmers had become positive martyrs to experience, that some gave way and consented to a change of opinion. And this line of procedure has not been noticed only with reference to plague itself; other contagious maladies have with great difficulty been accepted as such by many sufferers from loss, and this remark applies to foot-and-mouth disease and pleuro-pneumonia as much as to plague itself. Had it been otherwise, we doubtless at the present time should have been able to rejoice in a comparative immunity from each, and a better supply of beef and mutton at reasonable prices. The difficulty with which popular prejudices are removed in this country, particularly in reference to agricultural matters, has in this instance been productive of most baneful results. As long as the demands of our nation were small, and within the limit of supply from within ourselves, there was no reason for entertaining the least apprehension for the safety of our own stock; but when, by the pressure of internal circumstances, we were compelled to open our ports to the foreign feeder, we had not sufficiently weighed the consequences. While the demand was small, and clean countries could meet by a sufficient supply, all went well; but with an increasing demand, came the order to admit any number, the safest places were cleared, and the cattle of pest-ridden countries also became the means of furnishing supplies.



For a time there could be no question that the source of disease was in the countries furnishing the cattle from week to week. As soon as free importation was permitted, frequent and periodical outbreaks of foot-and-mouth disease and pleuro-pneumonia took place, and at the present time we may estimate our annual losses at several millions from these diseases alone. This is not all. It is now well known that wherever such are periodically taken, every inducement is held out for the country to become so many centres or foci of origin, for the reproduction over and over again of the same malady; and this which has taken place in most of the continental countries, Holland in particular, is precisely what has taken place in Ireland, and to a less extent, in England also. There was nothing to prevent this, while everything in the shape of want of care, forethought, and a total want of provision for the emergency, rendered the result at once certain and complete. With England it was less so, as the stock required were for the most part quickly slaughtered. In Ireland, thousands were required to stock the pastures, where they remained, lived and died, spreading the fatal germs of disease around them, poisoning the sheds and soil, without awakening any one scarcely to a sense of the alarming position. Ireland has been, and still continues to be a kind of nursery for us in the supply of grazing stock, and annually sends us two-thirds of the whole amount we require, hence we must accept without much hesitation the simple conclusion that with such a number we also receive fresh additions to our already present stock of disease.

For a long time this remained a disputed point. Although it was admitted that disease was being constantly introduced, and from which alone, even considering the existence of centres or stations for it in this country, no other reason could justify us in accounting for the frequent outbreaks, those who had decided to blame Holland only for them, stoutly refused to include Ireland in the cate-

gory of pest countries. But facts will rise when they are not wanted sometimes, and men must be convinced when they have proof positive brought before them; and in this instance they were not behind the usual order of things. By a merely ordinary investigation, it was discovered that pleuro-pneumonia frequently broke out among Irish stock, or speedily shewed itself in those animals with which they were herded after coming to this country; and in upwards of fifty instances of outbreak, relative to which we made searching investigation four years ago, it was distinctly proved that every one arose from the introduction of Irish store-stock. The *modus operandi* is very plain and simple. It occurs also, but to a much less extent in England, and is decided by the self-same circumstances and conditions.

In the present state of our law on this point there is no inducement for the owner to comply with its requests. He knows full well if he gives notice of the existence of contagious disease, the result is a shutting-up of his cow sheds, certain death of the major part of his animals, and this without compensation. If he keeps the matter secret, he may get rid of those not actually diseased and thus avoid loss, which pays him better than conforming to the law, which is in reality a hostile agent towards him. In this way, we are certain that hundreds of animals are frequently and regularly taken from the various cow-sheds of the country and large cities and towns of England and Scotland, and, travelling by night over bye-roads and commons, infect others as they pass, thus giving rise to disease as to the origin of which the owners are incapable of forming even the most faint idea. The remedy for this great and increasing evil may be summed up in few words:—Proper inspection of all cow-sheds, &c., with prompt slaughter of every diseased animal and compensation to the owner. The last and by no means the least of the essential principles is imposing a duty upon all cattle dealers.

## Dairy and Poultry Yard.

### INFLUENCE OF FOOD ON MILCH COWS.

THERE is no doubt that very great losses are sustained, from year to year, in the production of milk on account of the character of food on which cows are fed. When extra food is to be given to cows to promote an increased flow of milk, the choice should be governed by some settled principle, and not by a matter of guess-work, as is too frequently the case. In our experiments for increasing the flow of milk, we early learned the fact, says the *Rural New Yorker*, that grain rich in nitrogen gave better returns than those having less nitrogen and a large proportion of starch and oil. Thus, for instance, ground oats, wheaten bran, pea meal, &c., produced better results than corn, meal, or other mixtures of meal composed largely of starch, and which were poor in nitrogen. Bearing upon this question, we find some practical rules for the use of fodder presented by Professor T. Von Gohren, before the National Convention of German agriculturists, chemists, physiologists, and directors of the experimental stations held in 1871.

The Professor says:—In fixing such rules it is necessary to know, First, the general principles on which the desired results in feeding stock depend; Second, the most convenient means of attaining these results. Other things being equal, every method may be recommended which makes fodder more palatable and diminishes the tax on the digestive organs. It is necessary to distinguish between food designed to sustain the existing condition of the animal, and that in addition, to lay on flesh, produce milk, supply the demands of labour, increase, &c. With regard to the former kind, the farmer

may assume, as shewn by the experiments of Wende, that the amount of nourishment needed for 100 pounds of live weight is from one-half to one pound of nitrogenous food, and from seven to eight pounds of food free from nitrogen or of the same composition as starch. For producing flesh, an increase of food in substances not containing nitrogen is needed. Albumen must be furnished, and this can be done to the best advantage when the effect of oxygen in the circulation is reduced to its minimum, a result secured by the use of hydro-carbons, such as oils and oily grains, which are far cheaper than albuminoids. For producing fat, the farmer should use non-nitrogenous foods, because they are the cheapest. Fats can be produced from other fats, from hydro-carbons, and from albuminates; of these three ways, practical agriculturists will choose the least expensive. For producing milk, if quantity rather than quality is aimed at, the lacteal glands must be stimulated to their greatest activity, and for this purpose food rich in nitrogen is needed; and, since storing up fat is inconsistent with the activity of the superficial glands, to which the udder belongs, foods which contain a large amount of hydro-carbon must be avoided.

The experiments of Horsefall in the use of bean meal, a substance rich in nitrogen, furnish conclusive evidence of the value of this kind of food for the production of milk. He attached, very justly, the greatest importance to maintaining the condition of his cows giving a large yield of milk, and he states that he was enabled, by the addition of bean meal, to avert the loss of condition in those



giving 16 to 18 quarts per day, whilst on those giving a less yield, and in health, he invariably effected an improvement. And he infers from his experiments—long and carefully conducted—that albuminous matter is the most essential element in the food of milch cows, and that any deficiency in the supply of this will be attended with loss of condition and a consequent diminution in the quality of milk.

Professor Von Gohren makes some suggestions in regard to raising stock for the dairy which we do not remember to have seen brought forward by other writers. It is that calves which are allowed to suckle for a long time, or which are reared on an abundance of new milk do not, as a rule, make the best cows for the dairy. On the other hand, young cattle intended for fattening should be brought forward as fast as possible, and to attain this end milk and grain must be fed. The development of the chest and viscera, he says, will be retarded by want of exercise and pure air, since this renders the labour of the lungs less. The development of the fourth stomach is promoted by food that is easily digested and full of fat. "The opposite rule should be observed with young cattle intended for milk. The animal should be kept rather thin, and hence, should not

be allowed to suckle too long. Skimmed milk, hay tea, &c., is much better food for calves intended for the dairy, as well as much cheaper than the milk of the dam."

Does not this explain, in part, the reason why some of our thoroughbred shorthorns, though descended from good milking stock are inferior for milk, and is not the practice with some breeders of Ayrshires in pushing the forcing system of the young animal prejudicial to its future milking qualities? Some of the best milkers we have ever owned have been raised (after the age of ten days) on skimmed milk and whey, and in recalling our experience in this direction, we are inclined to think there may be more truth in the Professor's statement than would appear at first thought to most dairymen. If the Professor's theory be true, it is an important fact for dairymen and the breeders of dairy stock to understand. The wide development of the dairy interest in this country is directing much attention to those breeds of cattle noted for milking qualities, and to the breeding of good cows for the dairy. If food and the manner of rearing the calf has so important a bearing upon the milking capacity of the animal, it is well that the facts be generally known, lest we defeat the object sought, in our zeal to get the best results by extra feeding.

## The Naturalist.

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### PARTRIDGE SHOOTING.

WE wonder (asks the *Pall Mall Gazette*) whether the first of September is the same to anybody now as it used to be thirty years ago? Then it was still thought necessary to rise before it was light, to swallow a prodigious breakfast, to trust one's feet into a pair of boots thick enough and heavy enough to be used as instruments of torture, and to top them with leather gaiters reaching half-way up to the thigh. To cast off your dogs by five o'clock in the morning was not thought at all too soon. And it was customary to stick steadily to your work for a good seven or eight hours. The time for lunch was about half-past twelve. But no long time was usually devoted to it; nor was the repast itself of a very luxurious kind. Within an hour guns would be re-shouldered, and the whole party on the tramp once more. The afternoon shooting, however, was not so protracted as it is at present, men and dogs being generally quite willing to leave off about five o'clock. And two guns which in this way had got a dozen or fifteen brace were supposed to have had good sport; and so they had had, only they would have undergone much unnecessary fatigue as well as trouble. The heavy breakfast bolted in the middle of the night, the unaccustomed clothing, the broken sleep, and the couple of hours probably spent in fagging after birds before any real sport began, used to take it out of most men comparatively early in the day, and knock them up before noon. And it is only of late years, we think, that people have begun to see this. Nevertheless, to the young beginner the old system had a charm of its own which is wanting to the more comfortable proceedings of the present day.

Then the first of September was more of an event than it is now; a more complete interruption of the ordinary habit of life, looked forward to with intense interest and enjoyed perhaps with a keener satisfaction. Of the very fatigue itself one used to whisper to oneself cheerfully, *meminisse juvabit*, and the sport when it did come brought with it an amount of pleasure in proportion to the labour which had preceded it. In other respects, too, those old Septembers had thrice the life of these. There was stubble in those days; the turnips were not drilled; the hedgerows were not thinned; the ditch banks were not cleaned out. It was much easier to scatter birds then and make them get up in twos and threes than it is at present. The system of drilling turnips has taught English partridges to run nearly as badly as the French, and we have seen them in parts of England where we are certain no Frenchman ever came run about a piece of mangold, when the ground was dry, in the most approved Gallic fashion. However, partridge shooting is still capital sport, and it is essentially the sport of those whom either time or money, or both, forbid to think of going to the moors. For the sake of these last we are glad to think that the season is an unusually good one, though it is said that cover will be scarce, as, in spite of all the rain we have had, the root crops are far from luxuriant. But birds are reported plentiful from all quarters, and very strong and forward. The harvest, too, has been sufficiently early for the gleaners to have nearly finished, and there will be one of the partridge-shooter's pests out of the way at all events.

As we have said, partridge shooting is pur-



sued now more comfortably and leisurely, if with less excitement, than it used to be. We have discarded, except for very wet days, the ponderous boots, the tight, oppressive gaiters, the old-fashioned square-skirted shooting jacket, as stiff as buckram, with its huge "hare pockets," and take the field in a much more easy and *dégagé* style than was the custom of our fathers. Knickerbockers and strong but easy lace-up shoes are by far the best things to walk in when the ground is dry. Shoes, or an ordinary pair of walking boots which have seen their last day's work in London, are better in ordinary September weather than any regular "shooting boots." The jacket should be tweed or homespun, and instead of being covered all over with pockets, should have as few as possible. This was best even in the days of muzzle-loaders. But now of course the old array of pockets is meaningless. The only extra that even the sportsman who adheres to a muzzle-loader wants is an inside pocket for his nipple wrench, an instrument he should never be without. The change in dress has extended also to the hours of work. And here, too, comfort and the conditions of sport march together. The best time in the morning to begin partridge shooting is about half-past seven or eight. By that time the birds will have finished feeding, and will not be so wild as when disturbed in the middle of their breakfasts. At the same time, it is early enough for the dew still to be on the stubble and the herbage, so as to betray the whereabouts of the coveys to the nose of pointer or setter, if you are accompanied by those antiquated auxiliaries. If not, the birds of course will be plentiful enough to be walked up, and it does not matter what time you begin. Otherwise, begin, as we say, on your outside stubbles, and make a half circuit of your domain, keeping the birds well before you in the direction of the turnips. Keep on at this work for two or three hours, and then "go into them," and finish off that part of your beat before lunch. It will now be between twelve and one, and lunch should be followed by a good long rest, till past two.

In our own opinion the three hours which follow luncheon are the most agreeable part of the whole day. The birds have got on the feed again; but they are not affected by being disturbed then as they are in the morning. And they always seem, though this may be fancy, to lie better in the afternoon. It will be getting, too, a trifle cooler; and all readers who have experienced it will allow that there is something peculiarly charming in a fine September afternoon, when the shadows of the great elms are thrown farther across the light green aftermath of the meadows, and that indescribable stillness fills both the earth and the sky which only an autumn day can bring forth. If you begin shooting again about half-past two, reverse your process of the morning, and shoot through the turnips up to the stubbles, as lots of birds take to the root crops in the heat of the day, whether driven there or not, for the coolness and for the sake of rolling. Birds found under these circumstances generally lie well, and when scattered lie like stones. Working your way round to the stubbles again by about four o'clock, you will probably agree that in the next two hours you see as many birds as you have seen all the rest of the day, and we have often known a bag doubled between that time and leaving off. On no account omit beating carefully every bit of bean stubble that you have on your ground, for nothing holds birds in the afternoon like bean stubble. If the bean shocks are standing, it is still better. They are the favourite resort of a peculiar kind of beetle which the partridge finds irresistible; and as bean stubble on the first of September, if there has been any rain at all, is generally pretty good cover, excellent sport may often be obtained here when perhaps the birds are getting wild on the bare barley and oat stubbles. Any time before the afternoon feeding begins grass is a very likely cover for birds. And when you have broken a covey, if there are any old pastures close by with deep ridges and furrows, or long meadow grass which has not been fed off

since it was mown, always be sure to pay them a visit. If birds *are* there you are nearly sure to get them, for they lie better in grass than in any other kind of cover whatever. In the middle of the day, too, birds are often left behind for want of beating the fallows, where they delight in dusting themselves; and another favourite basking place for them, which many people never think of, is any old cart track where there are deep ruts a little overgrown with grass. There is no reason that we can think of why you should not go on shooting partridges till sunset. The dogs recover themselves wonderfully in the cool of the evening; and it is certain that in quite the early part of the season birds will lie just as well then as at any other time of the day. Finally, a word or two about dogs. First, pointers and setters are of comparatively little use where the French partridge is predominant. They are standing every ten yards; and perhaps never see a bird rise for twenty points. This spoils them without benefiting the shooter.

Secondly, where English birds are very abundant indeed, and the modern system of farming is in full operation, pointers and setters can be dispensed with, as you have nothing to do but to follow the birds from one turnip field to another, making as little noise in walking as you conveniently can. But where neither of these two conditions exist, and English partridges still have to be hunted for—in a word, where shooting still retains its old character of the “chase”—a good pointer is just as necessary as ever. Thirdly, in regard to wounded birds, spaniels in our opinion, are better than regular retrievers for simple partridge shooting. Two-thirds of the birds that are lost are lost in hedgerows, where the great lumbering black retrievers which it is the fashion to use now are no use at all. For this purpose you want a dog small enough to gallop along the ditch bottoms underneath the brambles, and to creep backwards and forwards through the hedge without being obliged to jump or to run for a gap.



THE  
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*UNION BETWEEN LANDLORD, TENANT, AND LABOURER.*

By Mr TRASK AYRESFORD.\*

I AM far from believing that, notwithstanding so much has been said and written, the necessity is at all generally recognized, or if recognized, acted up to, of increased confidence between these classes. A first cause why there is now more reason than formerly that there should be greater confidence is, that the necessity is imperative on the part of the farmer that he should possess a much larger capital to manage his business, and with more capital there must be more risk, and with more risk there ought to be greater confidence.

THE LANDLORD'S DUTY.

The landlord should, on his part, in order to meet his tenant, be more liberal in the covenants of his lease, and less arbitrary in many of the restrictions; he should never avail himself of the power to remove a tenant at the expiration of a six months' notice to quit, unless such be absolutely necessary, and he should do all in his power to provide his tenants with all necessary cottage accommodation for the labourers close to their work on the farm, the tenant, of course, paying a fair per-centage if asked. The landlord should also be careful that his land steward

and adviser is a practical man, bred to his business, and not a professional gentleman of a nondescript character; and he should be careful to have as much ground game on his estate as is compatible with no damage being done to the crops of his tenants, and that the gentleman (*quondam* keeper) in charge of this game should not in any case be an authority between himself and his tenants on any matter. It must be borne in mind that the profit accruing to the tenant, beyond a low interest for his capital, bears no proportion to the amount of capital and extra capital now required, and it is probably the knowledge of this fact which deters men of business from taking many of the large stock holdings which have been, and are, offered numerously for hire.

TENANTS AND THEIR LABOURERS.

The tenant has a double duty to perform; he holds the middle place, and, if he be true to himself, he will have to pay a due fealty to his landlord; and he might so farm his land that at the termination of his holding it is left without deterioration, and in a fair state for an in-coming tenant. He also must take care that the honest labourer is not defrauded of his hire, but that he receives a fair wage, punctually paid, accord-

\* Paper read before the Blandford Farmers' Club.

ing to the value of his labour. The labourer has a capital, in right of his own labour, and he is quite at liberty to use that right as he may think best, so that he does not abuse the rights of those above or around him. And it is very important, if it can be shewn how this part of the mutual capital of landlord, tenant, and labourer can be best taken care of for the advantage of the tenant, the benefit of the labourer, and the almost certain ultimate benefit of the landlord. I have said that the labourer has a capital in right of his own labour; he has also a duty to perform, not only as a citizen, but as a recipient of every freedom which, in this of all countries, is accorded to capital. It is equally his duty, with the tenant, to act so that it may not be laid to his charge that he has, by any act of his, contributed to lessen the value of the land for producing its utmost for the nation's benefit. Perhaps it is not very reasonable for us, as farmers, to expect that we shall be able greatly to lessen our expenditure for manual labour; we shall most likely have to do our work with fewer hands, and to substitute more and costly machinery in place of them. The hard work of the farm will thereby be made easier, harvest time shortened, and, as Mr Disraeli, I think, in one of his speeches not long ago, said, "We shall be able to humanize their labour." I believe every landlord and tenant having their mutual interest at heart will endeavour to make each other, as well as their labourers, contented and happy; and, if this be so, how little heed need be paid to the doings of those itinerant agitators, most of them too lazy to work, who go about, perhaps more especially in the south and west of England, endeavouring to stir up strife, and to set landlord, tenant, and labourers together by the ears.

#### LABOURERS AND EMIGRATION.

The failure of the Rev. G. Rodgers' scheme for founding a Yeovil colony, and—if the accounts recently published in the daily and agricultural papers be correct—the still more

disastrous failure of the Brazilian emigration movement, ought to set people thinking. On this matter the intelligence of the landlord and tenant may be of benefit to the labourer. They should endeavour to shew him that as regards migration to other countries, where the weekly wage is nominally higher, the work is such as in many cases to tend to shorten life, and the value of the cheap cottage and garden will then be appreciated, for it is not to be had. I hope, and I am inclined to think, that there has been some good resulting from the great amount of mischief accruing from the late agitation; it has made all of us think, and use our wits a little more, and, for the labourers' own sake, I hope that when they return, and return, I believe, three-fourths of them will, to their homes, from which they have been seduced by visionary promises of harvest without seed time and labour, and payment without work, they will not find their places filled by others, and the ingenuity and skill of the mechanic having devised means for lessening the necessity for their employment. The application of steam power to cultivation is destined, I believe, to work something of a revolution in farming; if a farmer can do with a pair of engines and a cultivator, worked by only three men, with perhaps a boy, the same amount of work, and that at the proper time, as can be accomplished by from twenty to thirty horses and the necessary accompaniment of carters, under-carters, and boys, who every year fancy somehow or other that they must have more money; depend upon it, the needful will somehow or other be found, and the necessity for so much manual labour will be proportionately lessened. Here, too, is a point where the landlord must step in and help; he should see that there is, in hilly districts, a fair supply of ponds or tanks for water, and he should not object to the removal of old, worn out, crooked, and useless fences, and he should take care that when the tenant is requested by the steward to ask the keeper about the removal of an old hedge—as happened within my knowledge



not very long ago—the so-called steward should be sent about his business.

THE UNION BETWEEN LANDLORD, TENANT,  
AND LABOURER.

During the past Session of Parliament, legislation has been attempted between landlord and tenant, and no doubt very many are sorry that the anticipated discussion on Messrs Howard and Read's Bill did not come off. My own opinion is this—that if the landlords do not meet the tenants in a way shadowed out in the various clauses of the Bill, the increasing numbers who have to be fed, pay or no pay to the tenant, will insist on the Bill being carried, twelfth clause and all. I hope none of this will be necessary; I think the landlords are beginning to be awake, that the tenants are awake, and there is little doubt but that the labourers are wide awake, and if there be a mutual desire to do their duty each to the other, there will be no need for legislation. I have touched upon the leading points and reasons why there is a greater necessity for thorough unity of feeling between landlord, tenant, and labourer. It is impossible for the agriculture of this kingdom to

be what it ought to be—viz., productive to its fullest extent, more especially in meat—(for we can get bread)—if the landlord so uses his right as to abuse the rights of the tenant, or, if the tenant, from want of capital, or want of knowledge of his business, fails to produce from the land for the employment of the labourer and the feeding of the many the greatest possible amount of produce; and, it is equally impossible, if the labourer so behave himself that when his services are of the greatest importance—viz., in hay-time and harvest, he stands up, looks his master in the face, and says that he dare not work any longer, because his other master, the manager of a labourers' union, says that he must not. Such cases, I believe, are rare; but there have been such cases, and it is not impossible that they may increase; if they do, we, as farmers, must look our position straight in the face, and hope for the good-will of our landlords to help us. I believe the labourer, as a rule, is well and fairly paid, that he generally has a happy and well-cared-for home, and I hope he will be wise in time, and not risk his all for that which will most likely end in nothing.

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*THE FARMING INTEREST—MASTER AND MAN.*

By Sir C. B. ADDERLEY, M.P.\*

I MYSELF feel a peculiar personal pleasure in the Staffordshire Agricultural Society, because it happens to be almost exactly coeval with my own connexion with the county as its representative. I have now represented this county in Parliament thirty-three years, and I believe this Society has existed thirty-one years, for I recollect its birth about two years after I was elected member for North Staffordshire, and I took part in rocking its cradle. It was at a

\* Speech delivered at the Staffordshire Agricultural Society.

moment of the greatest interest to agriculture, and therefore, through agriculture, of the greatest interest to this country—in fact, of vital interest. It was just the moment when protection was being struck from under the arms of agriculture, and some of the very foremost men of the day took part in establishing societies like this throughout the kingdom to enable the great interest of agriculture to assume safely its new position—no longer supported on artificial crutches, but having to take its part in self-support with the other manufactures and arts of the king-



dom. I maintain with the rest of the party to which I have always belonged in Parliament, that the protection which was given to agriculture at that time was given simply on the ground that land had to bear the principal part of the taxation of the country. The support of protection was taken from the farmers, but the burden of the main portion of the taxation of the country still remains upon their shoulders. Nevertheless they have gallantly endeavoured to discharge, as all Englishmen do, the duty which has been cast upon them. The support of protection was taken from them by the party who were the first to call for it when they wanted it themselves, but they have ever since stoutly and successfully maintained their position in the face of the broad principles of free trade and no favour. They have assumed to themselves the position of any other manufacture in the country, and have supported themselves by mechanical skill, economical production, and by all the means of advancing agriculture in the country that science and skill could give them. They have done so successfully. We see now the results, and I believe that during the thirty-one years of the Society's existence there has seldom been a more promising Exhibition than the one of this year at Newcastle.

#### FARMING AND FARMERS—A TRIBUTE.

Agriculture has now taken its place among the manufactures of the country. I recollect that at the time I have just spoken of agriculture was supposed to be antagonistic to the other manufacturing interests. It was supposed that there were two hostile interests in the country—agriculture on the one side and manufactures on the other—whereas we now find them side by side, not only not hostile, but absolutely, mutually interdependent—of equal importance—and viewed as nothing more than different branches of the same art and industry in the country. It is true that agriculture may have difficulties of its own—different to and in some respects greater than those of other arts in the country. The un-

seasonable rains which have fallen for some weeks must remind us that farmers have to contend with the most difficult and variable of all things, the weather, especially in the most variable climate in the world. I often think that the farmer ought to be the best Christian in the world, because he certainly has his temper tried. He labours through twelve months to prepare for a great harvest, and sees the result of his labours and patient waiting in a magnificent harvest ready for the sickle, when down comes a deluge of rain for six weeks in succession, destroying before him the hopes of the last six or eight months. I must say myself—for I have gone a good deal about the country during this very difficult harvest—that I have been excessively struck by the good heart and the good feeling of the farmers who have been suffering through this anxious time. They really do seem to feel what they ought to feel—that these things are in the hands of a higher Power, and that when we have received the worst we have received a great deal more than we deserve, and that we should be thankful for what we get, and make the most of things. Still it is a trial, and, after all, what is this world for but a trial? and farmers, if they benefit from their trial, will, as I say, be the best Christians in the kingdom. After all, too, the followers of other arts have their trials. If farmers have to cope with a variable climate and the vicissitudes of the weather, manufacturers have to deal with what are equally variable—the vicissitudes of fashion. I believe that no members of Parliament have better opportunities than the members for Staffordshire of seeing the correlative interests of the different arts of agriculture, manufactures, and mining in this country, and ought to be so well aware of their interdependence and of the difficulties under which they labour.

#### THE LABOUR QUESTION.

But there is one difficulty which we all suffer under equally, and now more than ever. Greater than the caprices of the weather, the caprices of fashion, and the



accidents that mining is liable to, is the caprice to which all these industries have been liable—more especially of late—and that is, the caprice of labour. We have suffered severely from that caprice of late, and what I would say of it is this—I do not think there is a man present among all the great employers who sit round these tables who would deny to the working classes an equal right of combination for their own interests as the employers have maintained for themselves. The employers may combine and the working classes may combine, but both should combine on legal and rational terms. There should neither be the tyranny which has been exercised by some of the working classes over their fellows, nor should there be that hostility between the two classes—the workmen and their employers—which has been produced by the intense ignorance of the democrats who have harangued the workmen on. They may combine on both sides in order to arrive at that point which both should seek to reach, viz.—the proper balance between demand and supply, which ought to regulate prices on the one hand and wages on the other—but there should be none of that bitterness of feeling and none of that ignorance which has led the working classes to take the hostile part which they have lately taken, and by which they have lost many of their best friends among the employers of labour. The fact is, they have been harangued into this by ignorant men, for in cases like this it is the boldness of ignorance which leads the right astray. They have shewn their ignorance by the mode in which they have made their claim. These agricultural labourers suddenly come forward—taught by one or two demagogues who have a smattering of political economy—and ask for what they call the market price of their labour. They quite forget that up to this moment they have not been living on market prices, but on artificial bounties.

There is not one of them who asks for the market price of his labour who recollects that he is having his cottage at a rent about 60

per cent. under its value. There is not one of them who recollects that he has been supported by the employer in his clubs, and in a variety of artificial means of support. This bounty he entirely forgets, and he thinks that he is to have one-half of the problem of free trade without the other half—that he is still to remain supported by the artificial bounty of his employer, with the prospect of eventually coming upon the rates of his district, while at the same moment he claims on the abstract principles of free trade the market price of his labour. I say that none of us deny their right to combine fairly to get a fair price for their labour: on the contrary, we wish them to do so. In no country in Europe is labour nearly so highly paid in proportion to the prices of the necessities of life as it is in England, but yet we are far from denying any class the right to combine in order to maintain a proper price for their labour; only let them understand the terms on which they are dealt with. I believe it would be a much sounder principle if the market-price principle were carried out, and labourers were given to understand that they must pay the full rent for their cottages, and not rely on the bounty of charitable clubs but on their own resources. This would be a much fairer, sounder, and much better principle for the country to go upon, but we have not arrived at that state of things yet. I wish we had. At this moment it is more important than ever that the employers and labourers should come to fair and sound terms as to their relations one with the other, which ought to be amicable relations, because they are dependent one upon the other, and would endeavour to secure each other's prosperity, if they were only to understand each other upon firm and legitimate ground. At no former time was the proportion of the population dependent on wages so large as it is now, and the proportion will increase more and more, while the number of capitalists will decrease, for it had become uneconomical to make small investments in any interest. But there will be no harm in a state of things



in which a great population is dependent on wages and capitalists decrease proportionately in numbers if only the relations between the two are sound and good. How is this to be brought about?

#### EDUCATING THE LABOURER.

Let me implore every employer of labour to recollect that by the labouring classes becoming better educated they would understand better their real interests and their relations with their employers. I do not want an artificial education, a mere show of education in schools for the labouring classes, but I want a sound education for them, not an education which would take them out of their place, but one which would enable them to take their proper place as labourers in the country. What would be the first result of making them a more intelligent class, understanding their own interests? It would, I conceive, be to make them a saving instead of a prodigal class. Where are the working classes now who lay by their money as they might do? What are they doing now? They are receiving enormous wages, but are they laying by any part of them? Are they not drinking their earnings—spending all in present enjoyment, instead of laying by and thus making capital for themselves. I want them to receive such an education as will lead them to study their own interests, and thus when they get £1 or 30s. a-week they will lay by a portion, and gradually become a capital class themselves, so that there will not be two separate hostile classes, but the labouring class by frugal habits will gradually pass into the other and dovetail the two classes, making them really and truly what they are naturally, interdependent on

each other. Such is the education we ought to secure for the labouring class—not a great amount of book learning, which is not suited to their condition, and which they will not be able to acquire in the limited time they can be kept at school, but an education which will teach them self-restraint, and exert an influence which will prevent nine-tenths of them becoming paupers in their old age. That is what we ought to aim at above all things, for I repeat that there is nothing of greater importance than that the working classes of this country should be intelligent and understand the mutual interests of capital and labour, since they are daily becoming more numerous and more powerful in proportion to the entire community. I recollect at one of these great meetings in this very county, when, after inspecting the various mechanical implements, and observing how scientific agriculture had raised the labouring classes more than the Privy Council and the School Boards are now doing, and looking upon the immense advance in the productive powers of the country, as evidenced by the stock and the crops exhibited, a gentleman present at one of these dinners, now Sir William Jackson, observed, “Gentlemen, I will tell you a better crop than any which you have been talking about. I will name a crop even more profitable than sheep or cattle, and that is a class of agricultural labourers intelligent, knowing their own interests, self-dependent, acquainted with sanitary laws which shall raise them into a much more vigorous class than they have yet been, acquainted, too, with their own position, and able to co-operate with you, the employers of this country, in maintaining the prosperity of the country at large.”



## FREE TRADE IN ITS RELATION TO AGRICULTURE IN FRANCE.

FOR the last twenty-five years the French Central Agricultural Society has been worked on a different footing to that on which it was originally started ninety years ago. In this advanced and practical age so many new, and to a certain extent conflicting, elements have introduced themselves into what was probably, in the opinion of the original founders of the Society, the simple, though important, science of agriculture, that a change of some sort in the interior economy of the Society was found indispensable. To quote the words of the Minister of Agriculture, who last year opened the annual meeting of the Society, chemists, physicians, geologists, engineers, and public economists are now-a-days required by agriculture to assist her in the problems daily presented to her for solution. According to M. le Comte de Kergolay, President of the Society, in a speech delivered on the 18th of last May, this want has been met by the subdivision of the Society into eight sections, which are severally devoted to the consideration of the general principles of cultivation, of special cultivation, of the growth of forests, of the management of animals, of agricultural statistics and legislation, of the chemical sciences, of natural history, and, finally, of machinery as applied to agricultural purposes.

When, three years ago, a general inquiry into the condition of all the principal industries of France was instituted, it devolved upon the Society to furnish the particulars required as to the existing state of agriculture. That these should be as complete and exhaustive as possible, each of the eight departments was charged with the preparation of the answers to all questions bearing on its own particular study. But the events which occurred in 1870-71 left, as may be

imagined, but little leisure in men's minds for such peaceful occupations, and only one report ever saw the light, that one the industry of woven fabrics. In the course of examination, M. Pouyer-Quertier, "un des représentants des industries textiles," declared that the treaties of commerce lately concluded with England and other countries had gravely compromised the interests of French agriculture. It is to the refutation of this statement that the speech of M. de Kergolay is mainly addressed.

By a comparison between the value of the exports for the four years immediately preceding the Treaty of 1860 and the four subsequent years, the speaker makes out a case for his side of the argument. From 1858 to 1861 the value of cattle exported for the foreign market increased only at the rate of 13 per cent. From 1861 to 1865 the table of return shews an increase of 73 per cent. The value of the exports of butter has increased at the rate of 76 per cent., of eggs at 120 per cent., of poultry at 500 per cent. In 1858 the value of agricultural products exported to England only was not more than 154,000,000 fr. From that year to 1861, it rose but to 161,000,000 fr., whereas from 1861 to 1865 it increased to 341,989,000 fr., that is to say, that it was more than doubled. The value of the same exports to foreign markets generally actually decreased at a rate of 5 per cent. between the years 1858 and 1861, but in the four subsequent years it rose from 568,494,000 fr. to 937,475,000 fr.—an increase of 65 per cent., and it has since exceeded 1,000,000,000 fr.

The influx into the Paris markets of foreign cattle was an especial grievance with those who were against the new treaties of commerce. By this they say the animals of the



country are driven out of their native markets. But the president shews that this is not so. In 1869, Normandy alone sent 43,442 oxen to the Paris market, besides exporting a considerable quantity to England; and in 1872, despite the enormous consumption during the war of the two previous years, and despite the ravages of typhus, the Paris market receive from Normandy alone 77,148 head of cattle, of which 41,662 were oxen. And were it not for this foreign importation, to what height, sensibly asks M. de Kergolay, would not the price of butchers' meat rise? Most certainly, he says, to a price inaccessible to the majority of consumers.

It had been also stated in the same deposition from which M. de Kergolay quotes the alarming sentiments thus combated, that French agriculture had suffered a loss of 300,000,000 fr. in a period of twelve years, from 1858 to 1869. The process of reasoning by which this result is arrived at seems to be a somewhat curious one. The excess of imports over exports in 1869 is greater by 300,000,000 fr. than it was in 1858. Hence this statement. But M. de Kergolay refuses to attach any importance to the comparison of any one single year with another. "Why," he asks, "take 1858 any more than 1859 or 1857?" He is not content, however, with resting his refutation on these grounds only. He denies the correctness of the calculations on which this result is based, and grounds his denial on certain tables, *détaillés et complets*, from 1858 to 1872, which are published at the end of his discourse. One instance only of incorrect calculation the speaker allows himself, referring his audience to the aforesaid tables, and takes for that purpose the year 1869. There the exports are valued at 723,400,000 fr., whereas M. de Kergolay shews them to have in reality exceeded 1,200,000,000 fr. In the former calculation cereals are not included, because "their produce is so susceptible of atmospheric influences." "But how, with reason," asks M. de Kergolay, "can any return of agricultural products be accepted as reliable which ex-

cludes cereals, the exports of which from France in 1872, amounted to close upon 300,000,000 fr.? In that case," he says, "to be consistent, as well omit all reference to wines and brandies as being also exposed, one year with another, to considerable variations."

That the imports have during twelve years, from 1858 to 1869, exceeded the exports, M. de Kergolay admits. That they did so before that period, and have done so since, is a fact which he does not attempt to deny. He merely asks what does that prove? Does any one suppose that the balance of 13,500,000,000 fr. in favour of the imports represents an actual loss to agriculture of that sum? The importation of products foreign to the soil cannot be regarded as a loss to the country. Coffee and cocoa, tea and spices, woods for dyeing or working purposes, are not indigenous to the soil of France. They must be imported, but how can the necessary cost be set down as a national loss?

That department of the Society which has especially to do with the statistics and legislation of agriculture does not hesitate to affirm, through the mouth of M. Passy, "whose experience and authority nobody can dispute," that the Treaties concluded since 1760 have "developed in the greatest degree our agricultural products." There is no country in the world, says this last authority, which is not now a consumer, in a greater or less degree, of French produce. Thanks to the nature and variety of its soil, to its geographical situation, and to the extent of its seaboard, France now sends her produce abroad into all countries. That is to say, adds M. Passy, all countries "where Governments do not render access too difficult by prohibitive tariffs." Against 568,000,000 fr. of exports in 1861 he sets 1,200,000,000 fr. in 1869, and has therein the best reasons for saying that "French agriculture is deeply interested in the development of our commercial relations with foreign countries." The disasters of 1870 and 1871 gave but a com-



paratively slight check to this triumphant march, and the Returns for 1872 shew but a decrease of 20,000,000 fr. on those for 1869, the most prosperous of all late years.

"Let us hope," concludes M. de Ker-golay, "that this good work, commenced by the English Treaty of 1860, may never be hindered." Credit, too, he thinks, should be given to the Society of which he is the President, for the trouble taken by it in preparing these statements—a work which shews but the more plainly the great solicitude it has always evinced towards anything in the way affecting the interests of agriculture in France, which may be taken to represent "l'élément solide vivace éminemment conservateur de la nation, parcequ'à la suite de nos commotions politiques ou sociales, qu'elle n'a jamais provoquées ou l'a toujours

vue se mettre résolûment à la tête de l'œuvre du raffermissement et de la réparation."

Within less than two years France has paid more than 5,000,000,000 fr., and is now at leisure to employ her capital in the development of "her national work." A foreign market is indispensable to her, and she has a right to demand from her Government that no obstacle shall be thrown in the way of her progress. "It is our business," adds the speaker, "to remember that it rests with us to keep what we get, to see that we are disturbed by no spirit of faction; and, appreciating all that has been done within the last two years to establish order and repair the terrible disasters of 1870-71, hope that our voice, too, will be heard in that Government and that Assembly which is to-day the Sovereign power of the nation."

### "THE GARDEN OF SCOTLAND."

IT would add greatly to the value of the Statistical Returns about agriculture in this country if, from each county in the United Kingdom a pretty full report was given of what may be the result of the present crop. Estimates made before the crop has been reaped, secured, and a fair proportion of it converted into money, can supply only uncertain data how far it may affect the exchequers of our farmers.

We are glad to hear from the farmers of East Lothian, and from the majority of districts in the Lowlands, that they have been enabled to get in all their cereals, and that the grain, which had been lying in the fields with every prospect of losing its colour, has turned out of a very fair quality, as well as preserving its colour.

Now, with regard to crop 1873 in East Lothian, our opinion is that it may possibly pay its way, but it would be a fallacy to state that it will repay even a fraction of the losses

of last year. It is quite possible there may be a few favoured exceptions, but, as a rule, taking in the whole county, the crop may be estimated as below an average. The wheat crop is a very poor one; we hold it to be the worst grown in East Lothian for many years. Last season we had a bad seed time, and bad seed to sow the crops with, and the result is only what those precursors for the crop would indicate. But there are exceptions, and some very fine fields of wheat have been grown this year in East Lothian. On one farm where the crop has been proved, the yield has been found to exceed 7 qr. per imperial acre. This large return may be attributed to two causes. First, the crop being grown on dry early land, and, second, the variety of wheat, Squarehead, a wheat which was introduced into East Lothian from Yorkshire, four years ago. Besides the advantage of being an early wheat, it grows a peculiarly stiff straw, which enables it to stand up under



almost any amount of artificial forcing, and the heaviest thunder-plump will not lay it. There may be—indeed, there are—many finer varieties, which will command a higher market value, but we question if there is any wheat in cultivation which will yield as much money per acre, and this is what our farmers should most look to, instead of what is too much the practice, of trying to top the market by growing the finer and more delicate varieties of white wheat. We repeat that the wheat crop of East Lothian in general is a poor one, and we estimate the produce under 4 qr. per acre. Besides being a poor crop, it ripened badly; it was, in many instances, hurriedly carried, and many weeks must elapse before it can possibly be in good condition for the market. Still, under all these unfavourable circumstances, it bears a cheering comparison with last year's crop, which, we may say, was almost totally destroyed. Notwithstanding the broken weather during harvest, there has been little, or almost no injury from sprout this year. The crop of barley did not present such a poor appearance before it was reaped as the wheat crop, but it has cut up a very light crop, and has gone into little bulk in the stack-yard. We estimate the yield at  $4\frac{1}{2}$  qr. per acre. Our opinion is formed from the produce of 36 acres thrashed off the stook. In regard to the quality of the grain, the early sown fields are very fine, and promise to malt very well; but really fine samples are exceedingly rare, and a great deal of barley is being marketed in poor condition. Our brewers were never so short of supplies, and we suspect it will continue so during the whole season. We hardly know what to attribute the shortcoming of the barley crop to. It suffers much from high cold winds in its early stages, and these winds we experienced in spring. We find April sown barley invariably grows a much bulkier crop than barley sown in March. Barley in East Lothian at least seems to thrive best in very dry seasons. In illustration of this we refer to the crops of 1868-69, when many fields yielded from 8 to 9 qr. per acre.

We have even known of 11 qr. per acre. Oats are by far the best crop in East Lothian this year. Some fields gave a most wonderful appearance in the stook, and the yield in many instances will reach from 10 to 12 qr. per acre. We give 9 qr. as the average. The estimate is formed from thrashing 8 acres of what appeared a good average crop off the stook. Oats were the only cereal crop last year from which anything like a fair return was realized, and this season those farmers who have a large acreage must be well paid. The agricultural returns shew a slight decrease in the quantity grown, which we hold should not be, seeing we farm now under free trade, and have to compete with the agricultural produce of the world; common sense should merely point out the advantages of growing a greater proportion of the only kind of grain in which we can fairly beat all other countries for quality. We now come to the green crops. Beans have been grown to a considerable extent instead of potatoes. The crop is deficient in straw, but well podded, and may yield  $4\frac{1}{2}$  qr. per acre. Then as regards the potato crop, on the result of which to many an East Lothian farmer a profitable or unprofitable balance-sheet for the year depends.

The potato crop is a large one, and, judging from the sales per acre which have already been made, and which are now taking place every week, the growers will be very fairly paid. The prices per acre have ranged from £20 to very nearly £30 per imperial acre, with all hand labour done at the expense of the purchaser. The crops may very safely be estimated above 40 bolls, that is 8 tons per acre. Many fields, we are certain, will reach 12 tons. The proportion of diseased potatoes varies according to the nature of the soil and locality of the fields, and may be reckoned at about 10 per cent. There are instances of a greater loss than this. A fine crop we saw lifted last week was diseased to the extent of fully one-third; but it was surrounded by trees, and the potatoes could never get the benefit of the drying winds which generally



succeeded the frequent rains we had during August. We think there is now little risk of the disease increasing. We attribute the comparative safety of the crop to *the late period* (last days of August) before the disease shewed itself to any great extent on the stems. The roots were well matured, and this season, what may be termed *the wood* of the potatoes, i.e., the stems, does not appear to wither up before the blight as it did last season. The stems seem to be gradually and naturally ripening, which is the best omen of all. The turnip crop of East Lothian has all through promised well, and must now be a good crop. The later sown fields have not grown so well, but all the early fields, especially Swedes, have a fine appearance. The extremely high prices of all lean stock prevent our farmers from realizing much profit from a large turnip crop, but it is the manurial value of a large root crop we must look to most. Having endeavoured to give an estimate of the various crops, it only remains to shew what may be the results of the crop of 1873 as affecting the landed interest of the country.

First of all, owing to short supplies of grain both at home and abroad, prices of all kinds of grain are certain to range extremely high, and landlords whose estates are leased under entirely grain rents will find their incomes largely increased over last year. I believe the fiars' prices of our wheat will be nearly doubled. Our clergymen whose incomes

vary according to the price of grain will find their stipends much higher. These are two cheerful views, but we fear we cannot give a third, and include the tenantry amongst the number of those to whom this may prove a bonus year. There is no trade or profession under the sun more speculative or uncertain than purely arable farming. The best illustration we can give of this is, What would be thought of a merchant's judgment, were he to embark and risk his whole stock and trade in a single ship without insurance? This we do every year from July to September. The indications for the farmer's financial budget for 1872-73 decidedly point, on grain rented farms, to much higher rents and increasing expenditure for labour. How this is to be met in many instances we really do not know. We recommend careful management and high farming. The expense of working a bad crop is quite as much, even more, than what is spent on a good one, and in these times of high priced labour, all our care and skill should be used to grow the very best crops of everything. There are some farms in East Lothian on which the crop of 1873 may restore a considerable portion of the losses of 1872. But these instances are rare, and all that even the most sanguine anticipations for 1873 may realize is that the crop may pay its way, and thus to some extent dissipate the gloom caused by the disastrous season of 1872.

*THE SITE FOR A COUNTRY HOUSE.*

TO enlarge on the advantages of a well-wooded undulating country cannot be needful. But it may be worth remarking that undulations of surface, and even extensive views, are not in every instance essential to render a place delightful to its possessor, and indeed, to all who see it. A tame flat may be made interesting and beautiful by suitable architecture and judicious planting. Among many examples of noble gardens for which Nature has done little as to the formation of the ground, but Art much by means of buildings and trees, two occur to me as worthy of special mention. Moor Park, which Lord Bacon and Sir William Temple considered scarcely to be equalled for beauty, is a dead level redeemed from tameness by noble trees and historical associations. In like manner, the grounds of London-house at Fulham, famous in the annals of arboriculture for the work done by Loudon, under the direction of Bishop Compton, are nearly as level as a billiard-table, and owe all their beauty to the design and the furniture, which are admirably appropriate to the limited dimensions of the place. In walking through such grounds our minds are so occupied in admiring the fine effects produced by skilful planting that we are apt to give the credit to Nature, who may be said to have done nothing, and forget the claim Art has upon us, which in reality has done everything; for though the growth of trees is a matter over which man has but little control, it is wholly Nature's work—it is the business of Art to select the kinds best adapted for special purposes, and assign to each its place in the general scheme. While, therefore, a flat surface may be made both interesting and beautiful, it is still true that beautiful natural scenes, extensive prospects, and, in short, an undulating and fertile country, is to be preferred. In such a scene

Art may not only find abundant opportunity for improving what Nature has done, but also for adding features consistent with the requirements both of necessity and taste; but there is no substitute for breezy uplands, far-stretching views over hill and dale, with their multiform outline of thicket, wood, and water, sometimes softening into green dimples of turf, at others rising into bold masses and rugged escarpments, and with shifting shadows and changing colours, deepening as autumn approaches into amber and russet and fiery hues; the whole perhaps rendered additionally attractive by historic scenes and remains of architectural grandeur. In such a scene the lover of picturesque beauty is well compensated if in his own grounds there are defects which Art must be called upon to hide, and it will be well also if not one beautiful feature is blotted out or marred in the endeavour to soften down some ruggedness of outline, or add artificial embellishments to that which cannot be improved.

When a suitable site has been found, it is well to consider what are the probabilities of its being some day made hideous by a railway, a factory, or a cluster of mean tenements; for disappointments of this kind are common in these days of "improvement." Ancestral properties of great extent afford some security against encroachment, when these form a portion of the boundary, and make a conspicuous feature in the scenery. Large lakes and tidal rivers are generally pretty secure against innovations, and if there be a wide choice of sites in a fine country, it is best to select a spot as near as possible to the particular feature which gives it its principal charm. By so doing the chances of being "built in" are lessened, and the possessor may incur considerable expense in making the best of a fine situation without



fear of being at last disgusted by the establishment of objectionable surroundings. It is a most important matter to ascertain, before deciding on the purchase of a property, whether there is a good supply of water, or, indeed, water of any sort. A small supply may perhaps be improved, and the sinking of a well may insure an abundance of this great necessity of life. But it is an easy matter to be deceived. How often have I, says a correspondent of the "Gardeners' Magazine," when called in to advise on the laying out of a garden, heard doleful tales of deception practised on the purchaser of a property by agents and others interested in securing a purchaser. Some acquaintance with geology may be of great service to a person who can apply it to an investigation of the district, but a profound acquaintance with that useful science is not always sufficient to enable one to predicate that on such a spot water may be found by boring for it. A stream flowing through may be made both useful and ornamental, and the hydraulic ram affords the means of forcing water up a considerable incline for the supply of a house, if in the first instance the water is at hand, and in the next if a slight fall can be obtained to supply the requisite power for the working of the ram. Springs of the purest water are sometimes met with on the summits of low hills, and proximity to such a source of supply is of inestimable benefit. So again the natural drainage of the land may be turned to account for some domestic purposes as well as for the use of the garden; but it is seldom that such a source of supply suffices for all the purposes required. If water occur in any shape, mechanical appliances exist for raising it to any required level, and to supply the house becomes more or less a question of expense. A rill which can be impounded, or a well which will never go dry—these are the best sources of water when there is neither a large stream nor the service of a water company.

To be near a public road or to have one

as a boundary on the north-east side of the property is a great convenience. To be entirely bounded by public roads is an advantage if the place be large, but an evil if otherwise. Land falling away to the south-east, and with a fine prospect in that direction, is preferable to being shut in in that direction and having views only in the north. The house should have its principal front on the side facing the best view, unless there are peculiar circumstances to vary the arrangement, and hence, if there be a choice of properties on two sides of a public road, the man who wishes to enjoy some retirement and construct a beautiful garden will prefer to be on the south side, that he may have the south country at his command, and all the advantages of abundant sunshine on his garden and fields. There is another consideration of some moment as to the proximity to a public road, and that is the amusement it affords. Man is a gregarious animal; he not only loves to mix with his kind, but he loves also to see those with whom he does not mix. How often do we pass a pleasant hour in observing the traffic on the highway!—the picturesque wain, the dashing equipage, the flock of sheep, the herd of cattle, the carrier's cart, the rattling and noisy omnibus crammed inside and outside—and especially outside with the hearty boys going "home for the holidays;" even the train of vans carrying jaded operatives—now all merriment and abandon—to enjoy a picnic, with flags and bugles to proclaim a happy truce with work; and, perhaps better than all, a circus, *in transitu*, the wagons crowned with golden dragons, and accompanied by elephants and camels "on foot." Such things may beguile the hours of some members of the family, if they do not take the taste of all, and it is at least worth a moment's consideration whether, in the course of time, the most lovely scenes may not lose their charm and become monotonous, if they are completely separated from all the signs of life that belong to the busy world.



## SEARCHING FOR COUNTRY HOUSES.

THE late Mr Loudon says that the autumn is the time to select a country house. The wealth of summer leafage is no longer a disguise ; through the drooping and thinned foliage you have a glimpse of all the contours of the land ; the stubble is a measure of the August harvests ; the later crops shew for themselves ; the succulence of the late grasses tells what wealth lies in the pasture-lands ; the stacks reveal the weight of the hay harvest ; and in ordinary Octobers, the condition of the water-courses gives a fair idea of their average stage of fulness.

Again, a man's estimate of the charms of a particular locality, and of the rural proclivities which it may provoke, is more safely made at the close of the season, when green is giving way to gold, and the eye takes range through the coppices, which in June were a leafy bank of verdure. The frosty mornings, and the chilly winds, and the leaves adrift, give him sharp intimation that the delights of June do not always cleave to the landscape. Not that he sees things at their possible worst, but he sees them on the wane ; and if he can watch the brown leaves spinning down the wind with a brave heart that exults in the frosty breath of later October mornings, he will be brave when the bare limbs shake in December, and the icicles are at the eaves, and all the green is buried in white.

There is many a man who, in the flowery burst of June, conceives an admiration for the country, and for a country home, which makes it seem quite possible for him to mate himself with it for a lifetime ; but with three out of five, it is but an intoxication of the season ; and his enthusiasm droops as the leaves droop—leaving him (if he makes the alliance) desolately stranded in November. But the man who finds it in his soul to admire the country in late autumn is good for a year, and for a current of years. There is

many a susceptible youth whose admiration knows no bounds when Hero wears her wreaths and laces, and is brilliant upon a festal evening ; but if he will be wise, let him stay decision till he sees her in the undress of morning, in the simplest of costumes ; and if at the breakfast-hour he can still admire the banded locks without accessory of flower or diamond, and the dress without trappings of lace or train, and the face without the flare of gaslight, or the exultation of a festal night, he may count his love sound and enduring.

Another reason for selecting a country home in autumn lies in the fact that it is by all odds the best season for all those firstlings of work by which a man settles himself into the limitations and angles of a new home. In the spring, there is the inevitable planting, the hurry of routine work, the magnificent haste of Nature herself, which, with a thousand upspringings of crops, and weeds, and ~~flowers~~, overlays work and defeats it. In November comes beautiful repose ; the summer crops and their demands do not impede changes ; the young trees are ready for removal ; good labour is never more accessible, and never less extravagant in demand.

We assume, of course, that whoever buys a country home will undertake such labour upon it as shall make it more fitting to his own individualities of taste. And by as much as its surroundings and disposition of enclosures and trees express his own wants and likings, by so much the more will it be to him a home in earnest, to which his loves will attach firmly and surely.

The changes, however, which would go to express this individuality of his own can be undertaken in the spring time only at ruinous waste, and with awkward embarrassments—these, for the most part, proving so great, that all serious work is ordinarily deferred by a spring purchaser till autumn. The conse-



quence is that the first flush of summer experience in the country is lived through under the auspices of tastes and habits not his own ; and he may thus come to form a false idea of his own aptitudes or likings for the country.

We do not wish to foster any exaggerated notion of that "first work" which purchasers invariably devote to a country home. It need not surely be large, but it must be characteristic ; and it is amazing what may be done, simply by removal of old enclosures, the transfer of a few trees, and the opening up of a little glade through out-lying woodland. Any large dealing with surface or movement of soil is to be most thoroughly distrusted ; it is at once the most expensive

and the most uncalled-for of all rural improvements—whether about a country home or in parks.

Nature has laid down her surfaces, for the most part, far better than we can over-lay them ; and the immediate work requisite in most country homes is simply to restore natural effects by removal of obstructing barriers, and of trees out of place. Distrust thoroughly the architect or gardener who recommends embankments or terraces, or serious change of natural surface. These give "great jobs" and but little satisfaction.

We may return to this subject at another day : meanwhile, we can safely advise those who are in search of country houses to look after them in these autumn days.

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### FOREIGN AGRICULTURAL PROGRESS.

**I**N a former number, it will be remembered, there appeared an article upon ~~the~~ with foreign countries, which was founded upon a Blue Book furnished by the British Consuls abroad. In fulfilment of a promise expressed at the time, we give herewith some extracts from the second volume of the same compilation.

Starting with the remarks of the Nice Consul, we find the following :—

The acreage of land in this district usually sown with wheat averages about 40,000. The average yield is about 10 bush. per acre, and in this district, containing a population of about 150,000, the wheat produced is not more than one-tenth of that required for local consumption. Barley is sown on 6250 acres, producing about 42,000 bush. ; oats are sown on 9340 acres, producing 63,672 bush. Millet of two or three kinds is cultivated, but not in large quantities. The cultivation of dry vegetables is considerable, and 28,770 acres are so employed. The varieties are many, but beans, peas, vetches,

and lentils are the principal ones. Indian corn is also grown, but not in any very considerable quantities. This and the dry vegetables are consumed by the population of the district, taking the place of bread and potatoes in the food of the peasant ; indeed the local supply is far from meeting the demand for all kinds of dry vegetables. Potatoes are cultivated on 110,600 acres, and 606,000 bush. appears an average result. This crop is successful everywhere, even high up on the mountains in the driest soils ; several sorts are cultivated, but the yellow and round tubers are the most esteemed. Few cattle are bred or kept in this district, so that manure is but little available, and although irrigation could be effected on a large scale, were advantage taken of the numerous streams descending from the mountains, comparatively but little land is cultivated under irrigation. Irrigation on a large scale would induce the farmers to breed cattle, or at least to rear cattle purchased in North Italy, and thus increase the products



of the farm, in root crops and successive cuttings of lucerne or other fodder.

From Oporto we learn that the exports of cattle from the Douro to ports of Great Britain, which began only in the year 1847, have increased with great rapidity and regularity until they represented a money value of £270,876 in 1870, and of £320,584 in 1871. The beasts which reach England are oxen, the jealousy of the Government interfering to prevent the exportation either of cows or bulls in order that the valued breed of Northern Portugal may not find its way to foreign countries. The race, however, though useful for draught purposes and very handsome, would have no attractions in the eyes of an English grazier or butcher; and the restriction as to exportation condemns the inhabitants of Oporto to the use of cow-beef. The animals when put on board represent an average of £24 in value. The animals are never over-fat, and are well cared for on the voyage, which lasts from four to five days. They are almost invariably grass fed, and the beef is of good quality.

As regards Poland, it is cheering to gather from the remarks of the Consul that agricultural machines of every description are becoming more and more in demand, even in the most remote districts; the Polish agriculturists, however, labour under great disadvantage in one respect, namely, from the total absence of skilled mechanics in the smaller towns, and a higher class machine, when once out of order, must generally be sent to Lodz, Lublin, or Warsaw, even for the most trifling repairs, which, of course, involves great delay and considerable expense. For the above reason, English machines are preferred to those of local or German make, as being better finished, and less liable to get out of repair.

The remarks from Corunna are as follow:—The extreme backwardness, and utter abhorrence of all changes of practical agriculture, so prevalent in the whole of Galicia, will not be easily overcome so long as, on a general rule, the prejudiced tillers of the soil

obtain by their old-fashioned labours a similar quantity of produce; and some very extraordinary event, if not a general calamity, would seem absolutely to be required to start and carry out any modern beneficial alteration. An excellent and pious lady, the Countess of Espoz y Mina, widow of the celebrated General of that name, has bequeathed to the province of Corunna some land, and the appropriate funds, for the establishment of a model farm and school of agriculture for the general benefit of all farmers, with the noble idea, no doubt, of thus gradually inducing this ignorant class to adopt other and more useful forms of culture. But it is much feared that this judicious effort, even if properly seconded (already a doubtful fact) by the authorities of the province, may not be as successful as would be desirable, and the funds washed away in some stupid direction or other, at variance with the noble designs of the donor. The animal produce of the district must be very considerable, because the head of cattle exported from it are stated to exceed at present 30,000 per annum, whereas in 1860 only one-third of this number was exported. The rise in the prices during the last fifteen years has not been so very marked and rapid as might have been expected. It appears to have risen only from 55 dols. to 70 dols. per head.

The Consul, resident in Berdiansk, in Russia, furnishes some interesting particulars. He says:—The country is threatened with a serious loss in the emigration of the German agricultural colonists. The new laws which have been passed by the Emperor abrogate the privileges under which the Germans have hitherto lived in this country, and which originally induced them to immigrate. They will in future be placed on the same footing as the Russian agricultural classes, and they will have to submit to the conscription. Their schools are to be under the supervision of Russian inspectors, and the teaching of the Russian language is to be compulsory. To these conditions, it appears, the Germans will



not submit, and they will probably take advantage of a clause in the Imperial ukase, which permits them to leave the country should they desire to do so, and seek a new home. Though the Germans have not succeeded at all in improving by their example the moral condition and agricultural ability of the Russian peasant—a failure due entirely to the defect in the laws, which effectually kept the German and Russian separate—to the wealth of the country they have added considerably, for they have brought large tracts of land, hitherto waste, under cultivation, and they produce finer crops and of better quality than the Russian. The Government may at last be induced to make a change in the law, and thus prevent the departure of more than 100,000 industrious, thrifty people. If no change be made, and they leave, the loss to the agricultural interests of the country will be very severe. A wound will be inflicted which it will take very many years to heal. Even the departure of the Negais Tartars is still felt as a severe loss, though sixteen years have passed since they emigrated, and their place is occupied by quite as many, if not more, Russians; but they have not replaced them.

Finland does not seem to be very auspiciously situated, if we may judge from the following:—Perhaps in no European country has the agriculturist a more uncertain or more unpropitious climate to contend with than in Finland, and I may remark that during my six years' residence in this country I have had the misfortune to see on two occasions the most magnificent crops of grain which a country could produce totally ruined through a single night's frost occurring in the month of July.

From the gradually improving Iceland the account is:—A good horse in this island may be had at present for from £2 to £4, which is nearly all profit to the owner, for the rearing of these animals costs next to nothing; they run wild in the open air nearly all the year round, and find their own food. It is only in the most rigorous seasons that a scant

allowance of hay is given to them. The Iceland cattle are in many respects like the horses, small, strong, and thrive on the smallest keep, and in many parts grow no horns. An ordinary cow will give about 2000 quarts of milk in a year, some as many as 3000; 16 quarts give 1 lb of butter. In the winter they are all stall fed; their fodder consisting of hay, cabbage, and roots. On the farms near the coast fish refuse is largely used in feeding them. The price of a cow varies from £3, 10s. to £5. The sheep take the foremost place in the rural economy of the island. Two kinds are found there; the one small, fattening quickly, and giving a large portion of flesh; the other large and less advantageous in the last mentioned respect. A peculiarity of the Iceland sheep is the smallness of the tail and the unusual development of the horns. It is not at all rare to see some of these animals with four or even six horns. A ewe gives on an average 50 quarts of milk yearly. Although the flesh is excellent, it does not fetch more than 1½d. to 2d. per lb. Its fat sells much better, being very hard, and containing a large portion of stearine. As much as 7d. per lb. is often paid for it for exportation; the quantity shipped amounting in some years to 100,000 lb. The Iclander never shears his sheep, but pulls the wool off with his fingers. In the spring, as the new wool grows, the old coat becomes semi-detached, and can be pulled off without suffering to the animal. Should any portion of the old growth still adhere to the skin, it is left until Nature has loosened it.

The Majorca Consul says:—For the cultivation of vegetables the soil is prepared to admit of watering between two furrows, it having been ploughed and dressed twice or thrice. Grass and pasture lands are scarce in the islands, the land being generally too dry, while that susceptible of irrigation is reserved for other cultivation. Grass lands prevail, however, in a greater proportion in Minorca than in Majorca. For the reasons above given, stock can only be raised in farms of great extent. In the smaller ones

the pastures, after corn crops, are usually let or sold. The total number of cattle in the province is estimated to be about 155,000. No kinds of machinery are used in farming in these islands. The soil is turned only a few inches deep by the old-fashioned Roman plough, drawn by mules or oxen, and it is broken by a simple hand-hoe, these being the only agricultural implements employed in aid of manual labour; with rare exception, indeed, that which nature affords unaided in this highly-favoured land is accepted as sufficient. The limited number of cattle, including horses, mules, pigs, and sheep, for the most part roam about on the mountain side, where they gather pasture, but where the manure is lost; and although manure is scarce, bones and rags are regularly shipped off to other places. The mountain springs, instead of being conducted to a channel that would allow of their being profited by, are lost in the torrents of the winter months; while, during the summer season, there are few parts of the islands that do not suffer more or less from drought; and artesian wells are almost unknown, though water is believed to exist in many place at probable an insignificant distance from the surface. The only appliance for drawing water for irrigation is the *noria* of the Moors. The introduction and working exhibition of modern agricultural implements and machinery may possibly, in the course of time, lead to their use

in these islands, notwithstanding that the efforts in this direction which have thus far been made by one or two enterprising land-owners have not given very encouraging results. It is exceedingly difficult to get the farmer to adopt any new system whatever; but it is easy to believe that the soil of these islands, in the hands of a more enterprising people, would give vastly greater products than it does at present. It may be here remarked that these islands are farmed by a class of men who are little removed by education or scientific attainments from their day labourers.

The Gothenburg (Sweden) account runs thus:—Of late years, and more particularly since the development of railways, a considerably increased export of farming and dairy produce has grown up; and as what in England are called factory dairies are being started throughout the country, and the cattle trade also seeming now to be regularly established, there is every reason to expect a steady extension of the supply and export of all agricultural and dairy productions. The growth of the butter trade to England, which may be said to have begun only four years ago, is most remarkable, as it is not more than fifteen years since butter was imported. The total export of this article from Gothenburg for the last three years was as follows:—1869, 7300 cwt.; 1870, 13,000 cwt.; 1871, 20,000 cwt.



*THE SECRET OF YANKEE PROSPERITY.*

A CALIFORNIAN paper thus reveals it:—

A Southern man, after having made a flying trip through the New England States, comes back filled with astonishment at what he has seen, and perfectly discouraged with his own section of country. There he saw little villages sticking in the midst of barren and uninhabitable mountains, with no surroundings to support them, evincing a spirit of life and prosperity unknown to even our large towns—the recognized trade-centres of our best agricultural regions.

And in the country he saw little farms producing like first-class English gardens, though on soil originally too poor to have grown bear-grass, and in situations that a Southern man never would have thought capable of being converted into a goat pasture.

The people all, as a general thing, seemed contented and prosperous; and if he had inquired into their circumstances, he would have found, strange as it may appear, everybody in these little villages well off and making money, and the little farms, with their stone piles here and there, and their stones constantly working to the surface to be carried off into other piles, and their annual calls for fertilizers to the extent of 150 dols. per acre, actually clearing their owners from 100 to 300 dols. on every acre enclosed. No wonder that he is discouraged when he looks from this picture upon our favourably-located towns, and notes their inactivity, their poverty, and general dilapidation, and upon our broad and fertile acres, and reflects that they are really, in very many instances, not paying the expense of culture.

One would naturally conclude that there must be some secret connected with all this, and so there is. At the village station the close observer would notice piles of cotton

bales, a circumstance calculated to create no particular interest in the South, but there, thousands of miles away from where cotton could be grown, it would take the form of mystery. Stepping out upon the platform in quest of a solution, his ears would be greeted by a sound as of a waterfall, having a peculiar humming accompaniment—spindles. The case would be plain—the strange little village would be recognized as a manufacturing point, and then he would know that we, in a far off section, were digging its prosperity from our soil—feeding it into a vigorous life upon the very food for which our towns were starving, and asking nothing in return—actually shipping our cotton at our own expense; and then, in order that it might grow fat on its business, buying its fabrics at its own profitable figures, and paying transportation on them to our homes. What a kind-hearted people we Southerners must be!

Then for the secret of success among the farmers. Passing through the country with his eyes open, the close observer would at the proper season soon have his attention arrested by an improved mower sweeping over the meadow under the exclusive management of a youth of, say sixteen, and accomplishing more in a day than could in that time be wormed out of a dozen freedmen with their scythes. A little later and he would see the younger brother of the youth turning the hay; and then, in due time, would come a still smaller boy with rake, followed by a trio of little fellows having all sorts of fun as they, with a hay-fork, stored away the crop in the hay-loft.

In everything done on the farm in New England this same plan is resorted to. If the soil must be prepared, instead of setting a dozen freedmen at it with their mules and ploughs to sweat through a week, as we should do, out comes a machine managed by a boy

or two, and in an incredibly short space of time the job is done and well done. A lot of seed is to be sown that would give our hands a long, tedious task; but there a stripling, with a seed sower, puts it down exactly right and in very short order. And when the crop is ready to be hoed, instead of charging it with a black army to play for pay, a boy harnesses his nag to a horse-hoe, takes his seat as in a sulky, and rides about over the field, hoeing several rows at a time.

In short, New England works by machinery, and therein lies the secret of Yankee prosperity. She has simply changed places with us—she owns her labour. If it were

otherwise, or, in different words, did she have to work on our plan, and depend on our kind of labour, and did we not in the goodness of our hearts give her the profits of our products, a few years would find her entirely depopulated, a happy hunting ground upon which the redman might pitch his wigwam, never to be disturbed by any encroachment of civilization.

There is no reason why we in the South should not own our labour in the same way, and set our spindles going, thus giving prosperity to our towns and villages. We can never be a success till we do it. Let us think the matter over.

### *SHIRREFF ON CEREALS.*

**T**HERE is no man living better entitled to speak about cereals than Mr Patrick Shirreff, of Haddington. For more than fifty years he has been a diligent observer of the growth and character of the plants which supply the people's food. The rejoicing for the glorious victory of Wellington over Napoleon had hardly ceased ringing—the blood which dyed the field of Waterloo had scarcely had time to sink into the ground and add aliment to gramineous herbs, when young Shirreff, walking across his father's fields in Haddingtonshire, noticed a wheat plant of more than ordinarily vigorous growth. The winter having been severe, had cut down mercilessly the greater proportion of the blades. This defiant plant enlisted the young man's sympathy, and next day he "took measures to invigorate its growth by removing the surrounding vegetation, and applying manure to the roots." The plant was not ungrateful for the attention. It shot forth with two-fold strength, but an enemy came, not in the night, to sow tares, but in the summer evenings to eat. The hares were the delinquents. Notwithstanding the

ravages of these vermin, sixty-three ears were gathered from the stalk when the time for harvest came; and out of these ears 2473 grains were rubbed. These were drilled in the following autumn at wide intervals, Mr Shirreff evidently being of much the same opinion as Mr Mechi, that thin sowing is a practice to be followed and commended. Broadcast was sown the produce of two succeeding seasons, and the result was that in the fourth the yield of this one plant gave 42 quarters fit for seed. The grain was one unknown to people skilled in cereals. This being the case, Mr Shirreff called it after the farm—Mungoswell's wheat. He had the disappointment which seems to be an attribute of discoverers and inventors, of finding that his carefully tended plant had been changed at the Haddington Corn Market into East Barns, Murray's, Fraser's, Lady Hall, and Allias wheat. This Mungoswell's grain, which is still grown pretty extensively in the Lothians of Scotland, is in colour lighter than Hunter's wheat, not so long, but fully equal in weight and quality.



Five years after this adventure with a wheat plant Mr Shirreff noticed an oat stalk growing head and shoulders above its fellows. He liked the look of it and carefully preserved the seeds. At harvest he tells us "the crops from the seeds of the tall plant which I had selected in the previous summer, proved to be the tallest in the collection; and this variety I introduced to public notice under the name of the Hopetoun oat." The grain of this plant, Mr Shirreff says, is longer than that of the potato oat, and as a rule it has a red streak on the concave side of the seed. Its weight is heavy, and the meal produced from it is of more than ordinary excellence—whiteness and quality both being taken into account. For fodder also it is much better than the potato oat, as the straw ranges from 6 to 8 inches longer. The stems, however, do not always grow the same height, and the irregularity gives an appearance of thinness to the crop. These oats were so much appreciated that they have been transferred to the shores of the Baltic; in North America, they are to be found; and in most of the localities in Britain, adapted for the cereal which Dr Johnson so much contemned, they may be seen waving in the fields. The United Agricultural Society of East Lothian has such a high appreciation of them, that they annually offer a prize for the best samples.

Seven years passed, and again, Mr Shirreff observed a peculiarly fine ear of wheat growing on a neighbouring farm. One hundred and two grains the ear contained. A few of them were lost, but the remainder were judiciously deposited in the soil, and the result was a handsome white wheat, heavy and of good quality. This Mr Shirreff denominated Hopetoun wheat, and in the western counties of Scotland it is now grown as white Hunter's wheat.

Still unwearied in well-doing, Mr Shirreff found another oat, which he named after himself. The grains do not weigh so well as the Hopetoun oat, but the growth of straw is more uniform and more prolific. Though not much seen at Edinburgh or Haddington, the variety is still to be found in Dalkeith and Kelso markets.

In 1856 Mr Shirreff went systematically to work in his investigations of cereal plants. The results of his experiments were Shirreff's bearded red, Shirreff's bearded white wheat, and Pringle's wheat. The bearded white is one much appreciated in the market.

Our space forbids us to continue further Mr Shirreff's experiments. Indeed, even if it did not, we should scarcely care to go farther, as we think Mr Shirreff's book on the "Improvement of Cereals" ought to be in the library of every farmer.

*POLITICS AND AGRICULTURE.*

THE views expressed in the following article are so like our own that we have great pleasure in transferring them to our pages from the *North of England Farmer*. The notion that politics should be excluded at the meetings where farmers congregate is utterly absurd. It is invariably broken through; our own columns can testify to the fact. Notably upon one occasion when a show was held in Ayrshire, the toast of the evening, "Prosperity" to that wonderfully prosperous Society, was relegated to a member of Parliament, not the Chairman. The toast was too far down the list to permit of our reporter remaining to listen. The obliging representative wrote it out. Being a keen politician, politics were introduced into the address. An exacting member of the Society interposed at a certain point of the speech, and it never was concluded. It appeared in full, all the same in our columns, and a subscriber wrote, wonderingly, how sentiments which had never been uttered came to be printed. We have given the explanation above, and our advice is that no subject bearing upon agricultural matters should be eliminated from the programme of an agricultural dinner.

Can any one give the "reason why" politics should not be talked about at agricultural dinners? We all know that the members and friends of agricultural societies belong to the two great political parties in the State, and that there be backsliders who pronounce for neither the one nor the other. We are conscious of a coming feeling of sickness when we find the chairman going over the usual *rota* of loyal and patriotic toasts, because we know that the Queen and "the rest of the Royal Family"—which is the ordinary way of proposing the health of Her Majesty and her sons and daughters—know nothing of them, and that they rarely see a record of the stereotyped eulogy of royal virtues. The Army, the Navy, and the Volunteers, are toasted for past glories and for those which are to come. The "Bishop and Clergy and Ministers of other Denominations" is another antiquated toast—for you rarely

see a bishop at an agricultural show, sometimes a clergyman, and occasionally other denominations." Last week, at a local exhibition, grace had to be said by a layman; and any man of ordinary observation may have noticed, at nine-tenths of the shows which are held at this season of the year, that people don't care to have the elaborate din drummed into their ears. Give the health of the Queen and Royal Family, by all means; but don't repeat platitudes. Toast the Army and Navy, but don't re-tell the stories of Waterloo and Trafalgar, as if the audience were mere children, learning their first lesson in English history. If we are to be enlightened in polemics, then let us know something that is new and fresh,—something about our great divines that we do not already know, and not the merely laudatory commendation of a particular diocesan. It is one of the worst faults of a toast list at an agricultural dinner that the very things which men like to hear are excluded, and that the things which they have been accustomed to hear are repeated, we will not say *ad nauseam*, but with a persistency which has the effect of inducing tobacco and absence.

Why, then, should not the politics of the day be introduced? We are not aware that farmers live or die because Liberals or Conservatives are in power. Agricultural shows are ostensibly encouraged for the display of stock and implements. So far, so good. But what of the dinners or luncheons afterwards? Are they to be the media of "soft sawder" only? Are practical farmers to be told how to grow the best turnips, or rear the best cattle, without a word as to the excessive burdens they have to bear in the way of taxation? Is nothing to be said regarding the relations of landlord and tenant, as to compensation for "unexhausted improvements," as to game, as to the extent of legislative interference, as to tenants and labourers, and as to other great collateral questions which more or less affect those connected with the soil? Surely agricultural societies were not established merely to give a medal to a fat pig or a fine leaper in a hurdle race? That they have degenerated in the latter respect is patent. The defence is, that without the attractions of water-leaps and other contrivances, the finances would fall off. This we readily admit, at the same time that we regret that our agricultural shows should have so far descended as to encourage merely professional exhibitions, which afford no real test of the quality of a hunter. It is, no doubt, very pretty to see a lady clearing artificial hurdles, receiving the plaudits of the spectators, and the award of the judges. But that any farmer would say that the



prizes offered for such feats encouraged the breed of horses, would be more than common-sense could bear. The genuine hunter is nowhere in competitions of this kind. Horses that have scoured the country, and borne the heat of the day, are put aside by judges who simply admire a bit of equestrianism, as if they were in a circus, and saw a nymph bursting through tissue hoops. Practical men look on the thing as a farce. They see that it is a mere show, and that the form and quality of a horse are not to be thus tried. But "it takes," and this is the only justification which managers and secretaries put forward in defence of a system which looks more mercenary than legitimate. And when we come to the *post-prandial*, or speechifying business, we find the same lack of reality. Rules, rules—limit and circumscribe a speaker. He may talk about everything except the very thing which his hearers want to know. He has, as we have already said, liberty to speak of the Queen and Royal Family, of the Army and Navy and Volunteers, and the toast of the day is concentrated in proposing success to the particular society of which he may be the president or chairman. What, in such swaddling clothes, can a man say that is not already known? He dilates upon the good or bad state of the crops, gives his opinion as to the quality and numbers of the stock exhibited, says it is the best exhibition he has

ever seen, drops a few words of encouragement in the way of going on and prospering, and then, as *Punch* would say—shuts up.

Why should this be? Agricultural societies, as everybody knows, are made up of political members of every shade. There may be a Tory chairman this year—a Radical the next. There is, we dare say, not a society in existence which has not undergone this political vicissitude. Indeed, it is generally arranged that diverse politicians shall alternately occupy the chair—thus conceding, by a side-wind, what the rules of the society ostensibly prohibit. We take it that such prohibition is a mistake, and that it is practically violated. There was Lord Derby, for instance, only the other day, who verged upon questions affecting the whole relationship of urban and rural labour, of machinery as against manual power, of the growth of towns and the abstraction of the peasantry—all which his lordship might have more fully spoken about but for the absurd rule which proscribes political subjects at these autumnal gatherings. It would, no doubt, be disagreeable to find an agricultural exhibition ground turned into an arena for political discussion. But gentlemen are gentlemen. They have their party battles "on the floor of the House" and in the lobbies, but they do not worry each other over the country dinner-table.

## Agricultural Implements and Machines.

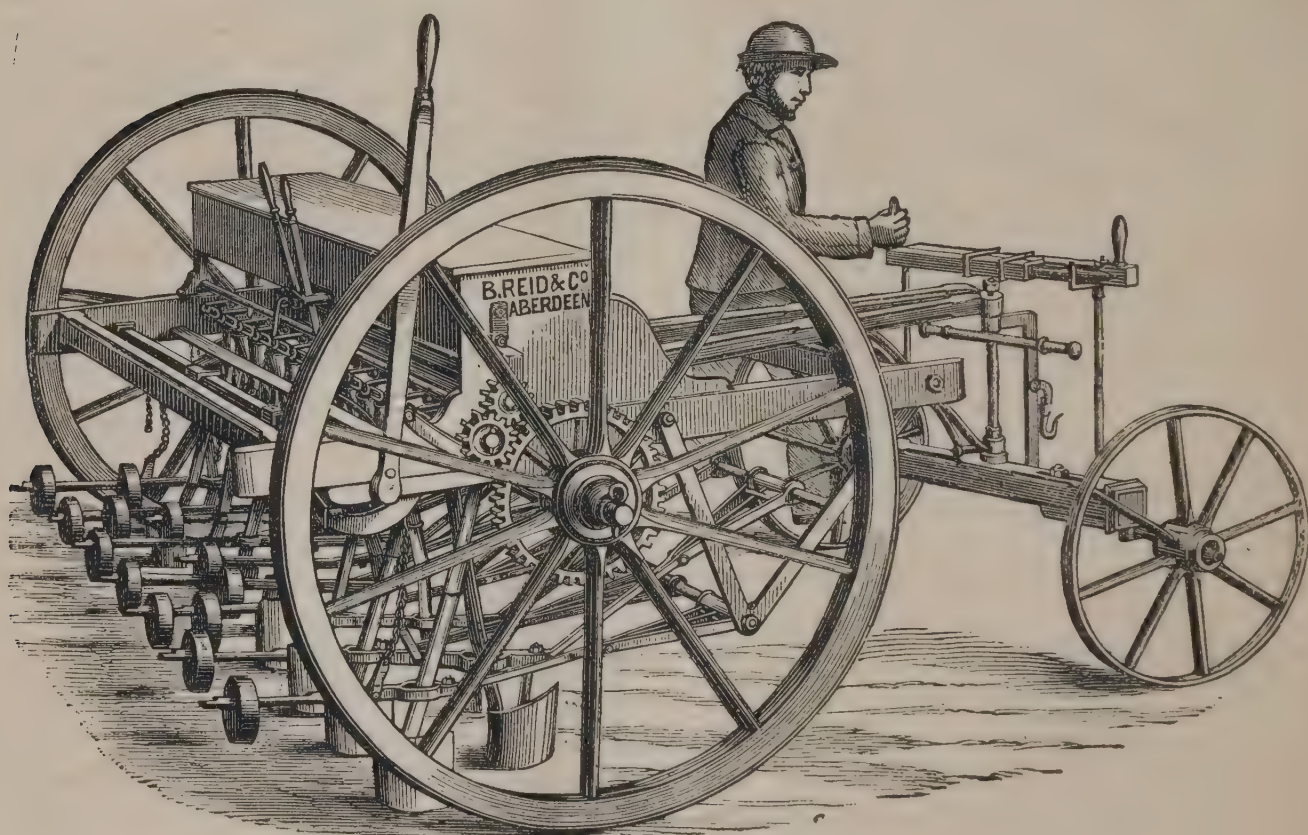
### PROGRESS PROPERLY REWARDED.

THE sowing of grain, legumes, mangold, and other kinds of seed is of such importance to farmers that it must be an advantage to them to have a simple and effective machine for the purpose.

In respect to the sowing of crops, and the machines used, very different opinions seem

“pinion” discharger. The pinion drills and broadcasts have, however, some disadvantages; amongst others, they are not adapted for sowing different kinds of seed.

A few years ago a new sowing machine was introduced by Messrs Ben. Reid & Co., of Aberdeen. This appears to us to combine



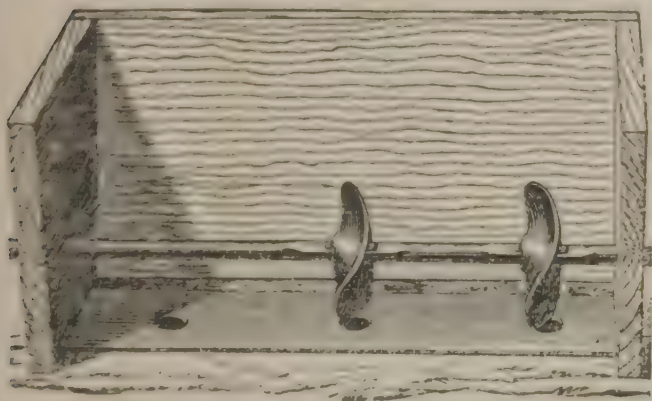
Messrs Ben. Reid & Co.'s Sowing Machine.

to exist in England and in Scotland. In the former, drilling is almost universal, and the “cup” discharging machines are principally used. In Scotland broadcast sowing is still in favour, and the machines used both for drilling and broad-casting have been for many years fitted with the simple “cog,” or

the simplicity of the “Pinion” drill with the advantage of being able to sow different kinds of seeds, like the “cup” drill. The principal novelty in these machines is the new form of seed-discharger, which is called a “disc,” and the drills and broadcasts fitted with these dischargers are known as the



"disc" sowing machines. They have been very successful ; in 1872 at Cardiff they were awarded the silver medal of the Royal Agricultural Society of England, and at the Vienna Exhibition, where these drills and broadcasts were shewn, we notice that Messrs Ben. Reid & Co. have been awarded the "Medal for Progress."



The Patent Disc Seed-Discharger.

The illustration represents the patent "disc" seed-discharger.

The action of these discs is very simple ; in revolving they sweep the seed through the holes in the bottom of the hopper with alternate right and left oblique motions. The

quantity of the discharge can be instantly regulated by simply altering the size of these holes in the hopper. The discs are made to revolve by a spur wheel on the land wheel of the drill, gearing into an intermediate pinion which gears into another pinion keyed on to the disc-rod coupling. *No change wheels* are used, nor is any levelling or regulating gear necessary for going up and down hill or working on a hill-side. Only two disc-rods are required for sowing different kinds of seeds, one for sowing small seeds, such as grain, grass seeds, &c., and the other for sowing beans, peas, mangold, beet, maize, and other large seeds.

The arrangement of the levers and coulter is much the same as in other drills, though having to do with the hilly and strong land in some parts of Scotland, the makers have a large "bridle" on the levers, which gives them considerable stay to enable them to resist side pressure, and they also make all their coulter of welded steel plates, riveted on to wrought iron shanks.

We understand that many of these drills are in use in Belgium, and that they are all employed in sowing beet.

### HAYWARD'S "UNIVERSAL" STEAM PUMP.

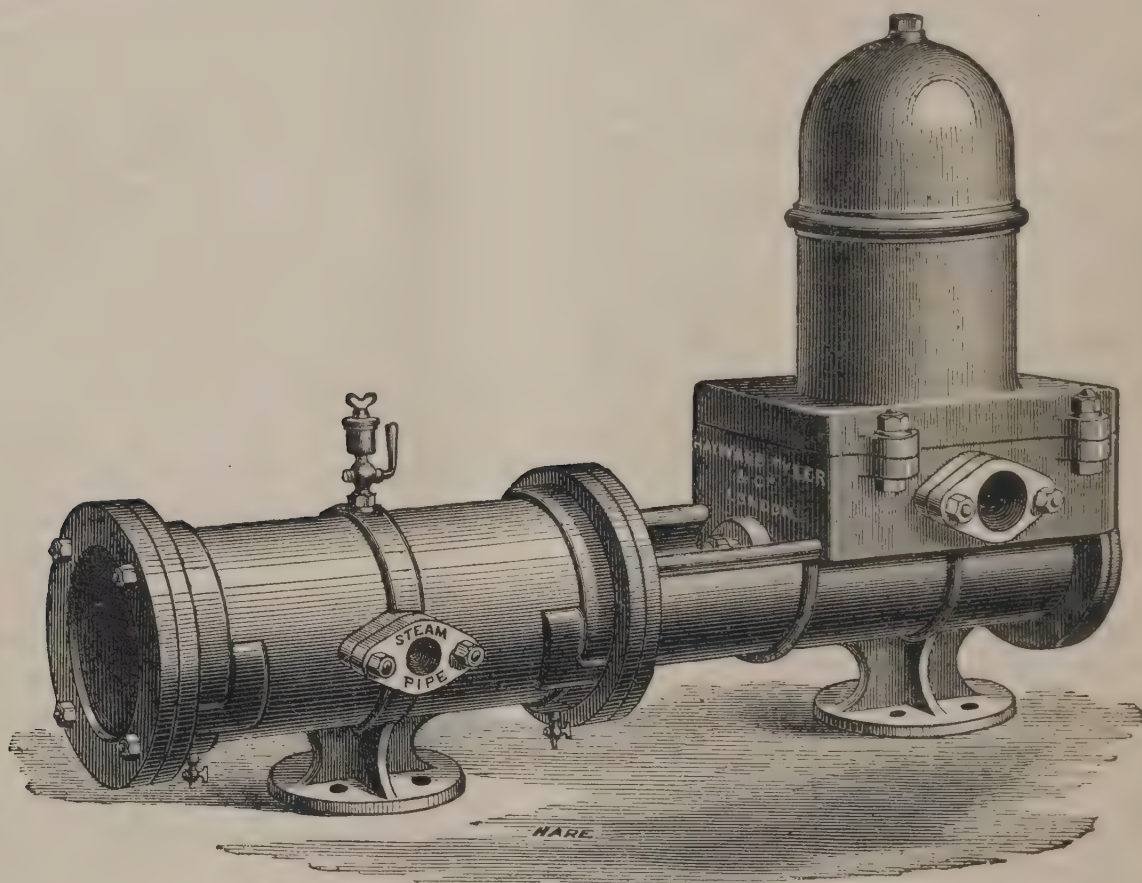
THE patent "Universal" steam pump is, as far as we can find out, the only direct acting steam pump in the British Section of the Vienna Exhibition which has obtained the honour of the prize medal for progress. The patent "Universal" steam pump has been already noticed in this magazine, and many have doubtless observed it at work at several of the principal agricultural shows since its first introduction to the public at the Royal Show at Manchester in 1868. The steam engine portion has only two moving parts—namely, the piston and a cylindrical valve therein moved entirely by

the action of the steam ; the pumps are made in several forms, according to the class of work to be performed by them. Thus, for deep mines they are constructed in such a way as to resist the enormous column of water, while for fire-engine purposes or for irrigation they are made with india-rubber valves for rapid speed and great durability. The annexed drawing shews the class of pump exhibited at Vienna, one of which was fitted up as a fixed fire-engine, and which, though fortunately never required to extinguish a fire in its neighbourhood, proved its utility by the popularity it

maintained amongst neighbouring exhibitors for supplying them with water even at long distances by means of its hose. They have often, however, been put to the test in earnest in cases of fire elsewhere, and we have never

and quenched with extraordinary rapidity although it had reached a very serious height before it was discovered.

These pumps have been successfully used with various systems of irrigation as well



Hayward's "Universal" Steam Pump.

heard of one case where they failed their owner in time of danger. Only within the last few weeks a very serious fire at a large chemical works (Stratford, Essex) was stopped as for supplying houses, towns, &c., with water. For irrigation purposes they will prove of great utility to agriculturists.



## THE AGRICULTURAL MACHINE WORKS AT CHICAGO.

THE increasing tide of emigration setting towards the West, together with the rapid settlement of large tracts of fertile and arable land by classes devoted to agricultural labour as a means of subsistence, has given rise to the development of an industry which, at the present time, has assumed proportions of almost incredible magnitude. We allude to the manufacture of agricultural implements, without the aid of which the profitable working of large farms would be a physical impossibility. Throughout the west the progress in this branch of trade has been not only great, but rapid. The tenacious sticky soil of the prairies, and its heavy products, proved at the outset that substantial machinery was requisite for its cultivation. The inventive genius of the country was thus stimulated, first to improve upon the implements in use to render them suitable to existing needs, and afterwards to devise new machines for the same end. The latter, no small number of which have been brought to the notice of the world through the columns of this journal, have, when proved valuable, found a ready market, and vast manufactories have sprung up, producing them in immense quantities to meet the constantly increasing demand.

Of these great works, the largest and most complete, says the *Scientific American*, are located in Chicago, in which city three establishments exist, which are probably organized on a grander scale than any other of their kind in the world. The most extensive is the manufactory of Messrs C. H. McCormick & Brother, and is engaged in the production of the celebrated McCormick reaper. The present works are entirely new, having been but recently completed, as the former building, together with all the machinery and a large amount of finished stock, were swept away by the great fire. The present struc-

ture is five stories high, 350 feet long, and is built in the form of an E, with wings 660 feet in length. It is constructed of brick, and has an aggregate area of floor of six acres. Besides the immense casting room and blacksmith shop, the latter containing thirty forges, there are forty-five rooms averaging 100 by 60 feet in size, with solid brick fire walls and double iron doors between each. Motive power is obtained from a 300 horsepower steam-engine. The precautions against fire are as perfect as possible, and are based on a system of great efficiency. On each side of the fire walls mentioned, are large steam and water pipes running parallel and also perpendicular from cellar to roof. Upon each floor are openings in these pipes, to each of which a hose 25 feet long is attached. Through the iron doors in the division wall are made a number of small apertures, large enough to admit the nozzle on the end of the hose. Should a fire break out in any of the rooms, it can thus be played upon by streams of water in such unlimited quantities as to check its progress at once. The cost of the new building has been about 500,000 dollars, and although the works have not been taxed to their full extent, it is believed that at least 10,000 reapers were completed before the harvest of 1873. The present force of workmen is 600. The material used is in keeping in quantity with the mammoth character of the establishment. Forty tons of pig iron are melted daily in the two cupola furnaces, and about 5 tons of wrought iron are used in the blacksmith shop.

The manufacture of ploughs, cultivators, and other implements of farm machinery is carried on on a gigantic scale by the Furst & Bradley Manufacturing Company, a corporation organized in 1854. Some idea of the magnitude of the works may be obtained from the fact that there are in the buildings

of the establishment over 4 acres of floors. The yearly product is 15,500 ploughs of various descriptions, 7200 cultivators, 1500 wheelbarrows, 4000 rakes, 7000 road scrapers, 4000 double shovels, 1500 harrows, 600 straw cutters, and 50 field rollers, besides a large amount of the machinery used in the manufacture of these articles. No less than forty-nine different varieties of ploughs, thirteen of cultivators, two of harrows, seven of rollers, six of scrapers, one each of straw cutters and rakes, and three of barrows, making a total of eighty-two different implements, are here produced. About 1000 tons of iron and 1000 tons of steel are annually used. The metal is shaped for ploughs or cultivators in four powerful drop presses, which, together with all the punches, shears, and the 125-horse power engine which drives the works, were made by the Company. The receipts of the establishment last year were, it is said, 600,000 dollars, and its products were transmitted all over the world.

The youngest of the three great factories is that of the Chicago Plough Company, located directly in the city of Chicago. Forty different styles of ploughs and cultivators are here manufactured, 500,000 lb. each of iron and steel yearly expended. The works employ about 150 hands, and are capable of producing 25,000 ploughs per annum. The buildings recently erected are arranged after the most approved plans, and the machinery throughout is of the finest description.

The three establishments disburse for wages alone in Chicago nearly 50,000 dols. each month, and employ in the aggregate 1000 men. The manufacture is steadily increasing, and there is little doubt that, when the immense tracts of territory between Chicago and the Pacific become more densely populated, even the great resources of the workshops above described will prove inadequate to meet the demands that will then be made upon them.



## The Farm.

### STEAM CULTIVATION v. HORSE POWER.

WE extract the following remarks from a little hand-book, entitled "Hand Book of Farm Labour," by J. C. Morton, published by Messrs Cassell:—

In a standard work on "The Valuation of Rents and Tillages" (Bayldon), the cost of the first year of the course of clay land cropping is estimated thus:—

	s.	d.
First ploughing in winter .....	10	0
Second ploughing in spring .....	9	0
Harrowings, &c. ....	5	3
Third ploughing with harrows .....	14	0
Fourth ploughing with the manure .....	8	0
Fifth ploughing.....	8	0
Seed furrow (8s.), &c.....	12	9

This is the tillage pursued in bare-fallowing clay land under ordinary horse cultivation. It is plain that six ploughings by a team of three horses, with a probability, almost a certainty, that some at least of these operations will be driven into a time when such land is in unfit condition for cultivation, must be a most costly and inefficient tillage. Every time that such a team has crossed the field something like 2 tons (man, and tool, and horses) have slid and tramped from one end of the land to the other; and in ploughing this has been done once to every 10 or 12 inches in width. Of course, this must harden the ground; and to any one who, without a practical knowledge of farming operations, merely reasons from the natural tendencies of things, it must appear the most clumsy and unlikely process for attaining tilth.

"What," might not such a one ask of the clayland farmer, "is the object of those long teams of cattle that I see traversing your fields all through the summer, going to and

fro twice for about every yard in width of the field they traverse? Are you aiming at the hardening and consolidation of the land?" "Certainly not," is the reply; "we are ploughing the land, lifting the soil, exposing a fresh surface to the sun and air. What we aim at by these means is to mix and lighten up the layer of earth in which we place manure for the growth of plants; to soften and reduce it so that the seeds we sow there may be covered, each of them, by moistened particles smaller than itself; to feed and mellow it, so that the young plants shall spread their roots abroad without difficulty, and find the food they need." "Well! but," may not the answer be? "these teams, with the men and boys and tools belonging to them, weigh 40 cwt. apiece, and to take those 40 cwt. trampling and sliding along every 10-inch width of the soil you want to 'lighten up' and 'soften' is an odd way of aiming at such an end, is it not?" The answer which is given to this is not satisfactory. "We well know," it is replied, "that there is nothing like treading with teams of horses or of oxen for hardening the ground. Indeed, when the land is loose about the young wheat plant, it is, in some districts, in the early spring, a common practice to adopt that mode of hardening it; but in ploughing they walk in the furrow, and the tool, too, slides along in their wake below the layer of earth we move, which, therefore, may be lifted, broken, loosened, and untrod-den, notwithstanding we are forced to use a team and a tool which must harden what they tread upon." This answer does not satisfy the querist, neither ought it to do so. It pre-

sumes upon a distinction between a soil and a subsoil which does not naturally exist, but is the result of the artificial treatment of both in common horse-tillage. The creation of a hardened floor beneath the former and above the latter, which in great measure cuts off the connexion between the two, is a real injury to fertility; and the destruction of this pan, or indurated layer, by steam-power is one of the greatest benefits of steam cultivation. The thorough drainage of clay soils is thus enabled; the material of the subsoil is thus added to the scanty supplies of the shallow layer which has hitherto fed our crops; the whole warehouse and machinery by which the work of plant-feeding has hitherto been accomplished is enlarged and energized, and an immense increase of fertility has been obtained. This is no mere theory of speculation; it has been realized in many instances, and realized in its most striking examples at a diminished cost. In place of six ploughings, by which horse-tillage achieves its imperfect result, a single thorough smashing up, before winter, of land which has been well cleaned after harvest, is all that well-drained clay land needs. I certainly do not assert this as a rule without exception, but of calcareous clays, at any rate, it may be asserted that, once drained and cleaned, a smashing up in dry weather before winter is better than a series of ploughings in the spring and early summer. This rough cultivation, followed by a winter's frost, is all that such lands need beyond the mere surface preparation of the seed bed in the spring, and that is work for the cultivator and the harrow. Mr John Fowler said truly on this point, at a discussion before the London Farmers' Club, that a comparison of the cost of the one operation by steam-power with that of a corresponding operation by horse-power was most inadequate; that one steam cultivation was equivalent not to one, but to a whole series of operations by horse-power; and this not only for its tillage effects, but for its inefficiency in the destruction of weeds. "When horses go a second time over the land, they plant as

much couch in it as they plough out of it, so that it is impossible to clean land so thoroughly by horses as by steam."

It is, however, to its effect in producing tilth that one chiefly looks as the great result of steam cultivation. There is, as was stated in the paper read on the occasion just referred to, abundance of plant food down below the level to which horse tillage extends; and so it must, of course, be conceded there is plenty of it below even the level—though that is much deeper—to which steam tillage extends. The main difference between the two lies, not in the greater depth to which so great a power as steam can work the land, though that is a most important consideration, but in the fact that horses trampling in the furrow along which the tool they draw has gone do harden a layer of earth above the storage, which is, in their case, thus cut off; and this makes the access, both of the air which would fertilize this mass of earth below it, and of the roots which would then feed upon the material thus fitted for their food, less practicable and easy. In steam tillage, where the power stands off the ground, and is conveyed by a long rope to the tool—where the tool itself is carried on large wheels—this mischief, whether it be poaching the ground which is thus moved, or hardening a floor immediately below it over the earth which is not being moved, altogether disappears. And it is not too much to say that a clay soil deeply drained, and then deeply stirred and cultivated in dry weather by steam power, is in altogether different circumstances from any which before all this it had ever experienced.

The availability of steam power for the deepest cultivation, and its applicability at the same time to the thorough cultivation of any depth to which it may be desired to stir or turn the soil without any pressure on it, except by the wheels of the implement employed, must ultimately obtain for it the preference over horses for all mere ploughing and stirring, especially of clay land, and a very large share of the horse labour of ordinary agriculture will thus be handed over to the steam



## ERRORS IN BREEDING HORSES.

IT is shewn by experience, that the nearer the characters of the parents approach, the more likely we are to succeed in communicating their common property to their progeny. By extreme crosses, good animals may, without doubt, be produced, but this will be a kind of chance, and the greater probability is, that the offspring will be defective in some point or other.

According to a foreign journal, nothing may seem so easy to the experienced breeder as to produce a splendid carriage horse, by crossing a large cart-mare with a thoroughbred horse; or, *vice versa*, by crossing the ponderous Norman stallion with a thoroughbred mare; both of which extremes of breeding we have met with in some of our largest breeding establishments. Yet how rare are the cases in which the offspring of such extreme mixtures are good! Either the body is too large for the limbs, the head too large for the neck, or some other want of harmony of parts presents itself, which renders the animal comparatively worthless. The effect is observed in the numerous attempts which are made to produce horses of breeding from mares through the means of extreme crosses.

Repeated failures are too often required to convince the breeder that this is not the mode by which well-proportioned animals are to be obtained. We may readily produce a fine ox from animals the most dissimilar; but where everything depends, as in the horse, upon a nice adjustment of parts, it is rare that the dissimilar characters of the parents will be so harmonized in the offspring as to produce a well-formed individual.

Another error, still more common, is to disregard the soundness and other properties in the mare in breeding. A mare, which is good for nothing else, is by too many thought sufficiently good for bearing a foal, and hence

numbers of worthless animals are destined to a purpose for which they are in a peculiar degree unsuited. Even in such a case, chance may do something for the ignorant and careless breeder; but the far more probable presumption is, that the offspring will inherit the defects of the dam, and prove of little value.

Many of our best mares are spoiled by cold and starvation, being often turned out upon a bare pasture, and allowed to expose themselves during the year to all the vicissitudes of the weather. After this they are in due course put to a horse who is as much overdone with warmth and stimulating food, and the result is an unhealthy, mis-shapen foal, resembling neither the sire nor dam. Both should be more carefully kept in health, and a little of the corn bestowed upon the stallion might well be shared with his harem.

It is very important that breeders should be more careful than they are in selecting their sires and dams free from hereditary diseases. Having formerly spoken at length on this subject, we will say no more of it at present.

The remedy for such mistakes is increased intelligence on the part both of those who rear horses and those who acquire them. The breeders, by possessing adequate knowledge of the principles of breeding, will avoid the error of injudicious mixtures of blood, and of employing females for breeding which are unsuited for the purpose; and the consumer will refuse to purchase animals which are wanting in that harmony of conformation, and constitutional soundness, without which no horse can be depended upon for performing the services required of him.

The more palpable defects of a large proportion of our mixed class of half-bred horses are their want of depth of the chest, the flatness of the sides, and the too great

apparent length of the limbs. Such horses are technically termed "weedy," and they form perhaps the worst class of horses in any country. They have, for the most part, spirit enough, but they are deficient in strength and bottom; and, although they may be easy in their limbs, are unsafe. Great numbers of these very worthless "critters" are every year reared and marketed, when the result shews them not to be worth half of the food they have consumed.

Breeding is no doubt a lottery, and this is not to be wondered at when it is remembered how small is the difference between the first and the last horse in the race. The slightest giving way in the machinery, or any dispro-

portion of parts of the animal, is sufficient to make the difference. One thing, however, is certain, that without good judgment and lengthened success in breeding is likely to be achieved; and though ill-luck will sometimes mar the most carefully-formed schemes, yet something more than good fortune is required. Perseverance is another essential, and when this is wanting, it cannot be surprising that the laurels that have been planted by one hand, however scientific, should be worn in the form of a chaplet by another. Continued ill-success is very disheartening, but if it be manfully withstood, it will generally end in a series of events of an entirely opposite character.

### *PURE BRED TUPS IN THE HIGHLANDS.*

**T**HIRTEEN years ago a number of the principal flockmasters in the counties of Inverness and Ross formed a club, with a view of promoting the breeding of pure tups in the Highlands, and also of facilitating the exchange by the sale of breeding sheep. The exhibitions in connexion with the Club were for some years held at Garve and Altnasheen, and were found to be productive of much direct benefit. The opening up of the country by the extension of the Highland Railway afforded increased facility for the transmission of stock, and in 1869 the popularity and usefulness of the Club were greatly increased by the resolution to move the shows to the more central site at Muir of Ord. Mr Smith, Strathconnon, then became Secretary of the Club, and public auctions of tups were instituted in connexion with the exhibitions. Yearly the popularity of the show and sale has been on the increase. At the fifth annual show and sale at Muir of Ord, which took place in September last, says the *Banff Journal*, there were animals entered from the five

counties of Moray, Nairn, Inverness, Ross and Sutherland. Next season, when the railway will be extended to Wick and Thurso, it is expected there will be an accession of members and exhibitors from the county of Caithness.

The flocks on the hill farms of Inverness, Ross, and other northern counties are entirely composed of pure breeds. On the finer and low-lying pastures Cheviots are generally kept; while the blackfaced breeds are maintained on the scantier keep of the higher grounds. Cheviots are, however, in the majority, and by care in breeding and efforts for increasing and enriching the pasture, they are gradually being improved. One of the aims of this Northern Pastoral Club has been to bring the Cheviots and Blackfaced tups to such perfection in the Highlands as to obviate the necessity for going to more favoured districts for males to breed from. The general practice in the management of flocks on hill farms is to transport the lambs of the season, about the beginning of November, to the east coast of Inverness.



Banff, and Aberdeen, where they pasture till the beginning of April. On the east coast the young stock get better living than they could obtain on their native hills. During the winter they are kept free from the risk of diseases to which they would be very liable on their home pastures at that season, and not having been subjected to the severities of winter on the hills, their constitutions are unimpaired, and they make much greater progress in the succeeding summer.

Wethers are kept till they are three years old. Cheviot wethers are either sent off the pastures to the butcher or to be fed on turnips. Many of the Cheviots from these counties are sent into Northumberland for turnip feeding. Blackfaced wedders are either sold as fat from the hills, or put upon turnip in the north till fit to be sent into the Edinburgh and Glasgow markets.

Both Cheviot and blackfaced ewes are retained on the hills for breeding till they are five years old. They are then sent down to the low arable lands, where they are usually kept a year. To Leicester tups the Cheviots cast half-bred lambs, and the blackfaced produce the cross or grey-faced lambs. When the lambs are weaned about the beginning of August, the ewes are fed for the market. The lambs are either sold to the butcher or wintered and clipped. In the latter case they are used for crossing, and thereafter despatched in the autumn, or kept on to be fed through the winter on turnips. In some cases the old ewes have been kept in the low country to produce a second lamb, but that practice is considered unprofitable, as it generally reduces the marketable value of the ewes.

With the view of maintaining and improving the character of the breeding stock, tups are introduced from the best Cheviot and blackfaced breeding districts in the South. A strain of new blood is generally desired, but it is held by many farmers that if a good quality of tup can be bred in the Highlands, it is preferable to an imported animal. Hence it is becoming more generally the practice to

buy in only one or two tups from the South, put them to a selected number of ewes, and retain the male lambs to breed from with the rest of the flock. Tups are usually kept in use till four or five years old and then changed. The shows and sales of the Pastoral Club are, as we have said, designed to facilitate the exchange of tups from the various flocks in the counties.

The flocks have hitherto been universally managed in these counties on the principle noted above. Within a short period, however, much interest has been manifested in a change of practice on at least two farms, that of Udale, near Cromarty, and Balmuchie, in the neighbourhood of the Fearn Station of the Ross-shire Railway. These possessions are partly arable and partly hill pasture. The flocks upon them are of blackfaced ewes, but instead of breeding pure stock, Leicester tups are introduced, and the produce are entirely greyfaced lambs. While the hill grass is in full bloom, it is perfectly good for the whole stocking, but shortly after weaning time, the lambs are brought down to the arable ground. If not sold off before spring, the young stock at that time return to the hills, and at the end of the season are taken down and fed off for the market. Thus all the stock produced on the farm are sold off when lambs, or fat at two years old. The stock thus produced are hardy enough, well woolled, and sell readily. A proportion of the old ewes are parted with every season, and their places filled by the purchase of as many blackfaced hogs or ewes. The practice is doubtless profitable, but it is believed that, if it were extensively followed, as there would of course be a decrease in the produce of pure ewes, in emergencies there would be difficulty in obtaining these to keep up the required number of the breeding stock.

At the Show on Tuesday, there was satisfactory evidence that the quality of the tups bred in the Highlands is improving. Each exhibitor enters the lot of tups he desires to sell. In the aged classes, the tups may be imported animals, but in the shearling classes they

must be bred by the exhibitor, who, however, may not dispose of the animals which carry the prizes. The number of Cheviots entered for competition was smaller than on any previous occasion, but they were all of superior quality. All the stock entered from Strathbran were bred by Mr Mundell. There was a larger display than usual of blackfaced. The first prize aged tup was a recent purchase from the South, and is intended to be used in the flock at Novar. The ewes and gimmers

from Clunas were exhibited at Inverness, and we may note here that the protest mentioned in our report of the Inverness Show as entered against the sheep from Clunas, was rejected, the person who lodged it having been under a misapprehension regarding the animals. In the Leicester classes, the animals from Ryefield were the same as were placed at Inverness. The shearling Leicester tups were bred by Mr Harris, and one of them beat the animal which was first at Inverness.

### IMPORTS AND EXPORTS OF AGRICULTURAL COMMODITIES.

THE Trade and Navigation Accounts for the month and nine months have been issued. With reference to cattle, in the month, they exhibit a decrease as compared with 1872; but, although the number is smaller, the relative cost is greater. For 20,459 oxen, bulls, and cows, in the September of last year, we disbursed £386,890, which gives an average of about £18, 18s. per head; in the corresponding month of this year the number of cattle received was 16,570, and the sum we paid away £323,202—an average of nearly £20 each. In the nine months, our receipts of live cattle from Continental countries were 96,680 oxen and bulls, and 27,610 cows. In the three quarters of the year, ending September 1872, the figures stood—oxen and bulls, 87,150; cows, 24,858. In the like period of 1871 we imported 105,238 oxen and bulls, and 51,503 cows. The heavy number of the latter may account, to some extent, for the undue prevalence of disease in that year. The sums we paid for oxen and bulls, up to the end of September 1871, was £1,838,496; for cows, £737,625; in 1872, oxen and bulls, £1,674,330; cows, £366,145. This year we paid, under the head of oxen and bulls, £1,952,050, and cows cost us £515,702. It thus appears that the oxen, two years ago,

cost each, in round numbers, £17, 10s., and the cows £14, 4s. In 1872 the price was for oxen £19, 4s., and for cows £14, 10s. This year the oxen made £24, 4s. each, and the cows £18, 16s. per head. Taking all live cattle together, we have paid this year, up to the present time, £2,467,752, as against £2,040,475 in the corresponding period of 1872. The imports of calves were larger, and the prices ruled higher. Up to the end of the three quarters also, the number of foreign sheep landed at our ports was greater than in 1872, viz., 682,920, as against 653,175. For these we paid £1,423,828, as against £1,312,019. There was also a very noticeable increase in the imports of swine, the porkers rising from 13,002 in 1872, to 51,026 in this year. The price we paid for them this year was £156,627, to compare with £41,915 in the like term of last year. But this sum for foreign rashers is nothing—a “mere drop in the bucket” would inadequately express its insignificance, in comparison with our debt for bacon from other countries. For this article we paid, up to the end of September, £4,366,999, to contrast with £3,146,416 in the three quarters of the preceding year.

Goodly sums these, but they do not include all that we have expended upon animal food



For beef salted or fresh, or slightly salted, we expended £404,542; for hams, £448,573; for other meat designated in the returns as "unenumerated," £682,729. Of this total £542,445 was for preserved meat, which is a considerable falling off from the same period of last year—about £75,000. For pork, our expenditure was greater than up to the end of September in the three quarters of the previous year. Summing up all the debts for butcher meat that we have incurred to foreigners in the nine months of this year, we find that they amount to the enormous sum of £9,418,830, or at the rate of nearly £12,000,000 sterling per annum—surely a preposterous sum, when we have so much uncultivated land in our own country so well adapted for the raising and feeding of cattle!

Turn we now to the dairy and poultry yard, and what facts do we find? These—and they are not at all creditable to us as "a nation of shopkeepers," who ought to look after our own interests, nor as agricultural producers, who should make every effort to keep our money within our own borders. In nine months the sum we have paid for butter made abroad is £4,962,287, last year it was only £4,539,837; cheese cost us more by nearly £750,000 than it did in the corresponding period of last year, viz. —£3,005,456; eggs (of which we have already imported 556,727,760), £1,962,791; and poultry (including rabbits), £135,211. Altogether, for what we could raise on our own farmsteads in the way of meat, were capital invested in the soil, we have *thrown away*, we cannot find a better expression, £19,484,575.

Coming to corn-produce, the statistics of the Board of Trade tell us that our imports of wheat are greatly in excess of what they were last year. The quantity received was 30,759,405 cwt., to compare with 27,397,905 cwt. in the corresponding period of 1872, and the cost was £19,797,840, as against £16,638,816 in the preceding term. The price this year was dearer by 4d. per cwt. than last, being 12s. 10d. to contrast with 12s. 6d. There was a large falling off in the

receipts of barley, also in Indian corn, and a slight diminution in beans. An augmentation is noticeable in oats, and likewise a slight increase in peas. The wheat-meal imports, it will be observed, are very much larger than in the like term of 1872. The total amount paid for cereal food was, up to the end of last month, £37,398,965. Adding this to what we expended upon animal food, we get the enormous total of £46,717,795 taken out of the British agriculturist's pocket in the short space of nine months. Comment is superfluous.

The following tables shew the precise figures of quantities and values, and the countries whence our supplies of wheat, &c., were derived:—

## QUANTITIES.

	Nine Months ended Sept. 30, 1872. Cwt.	Nine Months ended Sept. 30, 1873. Cwt.
Wheat.		
Russia.....	12,983,710	7,319,200
Denmark .....	153,196	257,184
Germany .....	2,740,997	1,412,575
France .....	743,560	1,169,193
Austrian Territories...	42,232	15,009
Turkey, Wallachia, } and Moldavia .....	727,543	279,974
Egypt.....	1,777,045	1,136,748
United States .....	5,344,619	13,065,441
Chili .....	1,170,359	1,317,840
British North America	637,662	2,013,042
Other Countries .....	1,076,982	2,773,199
Total.....	27,397,905	30,759,405

## VALUE.

Russia .....	£7,583,886	£4,577,332
Denmark .....	100,919	173,478
Germany .....	1,840,650	1,002,320
France .....	480,377	746,892
Austrian Territories...	25,299	10,239
Turkey, Wallachia, } and Moldavia .....	387,914	162,310
Egypt.....	881,505	624,436
United States .....	3,437,847	8,479,601
Chili .....	767,768	824,258
British North America	415,093	1,321,974
Other Countries .....	717,628	1,875,000

Total..... £16,638,816 £19,797,840

# The Country Gentleman's Magazine

## QUANTITIES.

	Nine Months ended Sept. 30, 1872. Cwt.	Nine Months ended Sept. 30, 1873. Cwt.
Barley .....	9,159,266	6,797,907
Oats .....	8,755,988	9,648,894
Peas .....	794,116	980,462
Beans .....	2,247,627	2,173,803
Indian Corn or Maize.....	17,949,825	15,025,858

## VALUE.

Barley .....	£3,535,097	£2,912,514
Oats .....	3,157,221	3,833,397
Peas .....	338,543	416,978
Beans .....	896,023	906,388
Indian Corn or Maize.....	6,393,720	5,161,738

## QUANTITIES.

	Nine Months ended Sept. 30, 1872. Cwt.	Nine Months ended Sept. 30, 1873. Cwt.
Wheat Meal, and Flour.		
Germany .....	700,581	463,707
France .....	508,668	1,577,774
United States .....	345,192	936,392
British North America	199,238	318,995
Other Countries .....	664,447	1,352,216
Total .....	2,418,126	4,649,084

## VALUE.

Germany .....	£644,283	£455,741
France .....	455,029	1,504,746
United States .....	277,524	823,143
British North America	173,918	282,434
Other Countries .....	679,967	1,304,046
Total .....	£2,230,721	£4,370,110

The imports of potatoes, while diminishing in the month on account no doubt of the excellent crop at home, have been heavy during the three quarters of the year. We paid for them £1,856,555, as against £452,549 last term.

Regarding manurial substances we notice that there have been fewer bones landed, no doubt on account of the difficulty in obtaining them. Guano has been more in demand, the sum expended upon it this year, so far as it has gone, being £1,349,950, to compare with £815,977 in a similar period of last year. Nitrate of soda is growing in the estimation of farmers, the amount disbursed for it up to September reaching £1,313,582, to contrast with £964,263. With reference to "feeding stuffs" we have to say that oilseed cake came

in slightly less quantity, 100,165 tons to pare with 103,185; there was also a decrease in cottonseed, and the same remark as to clover, flax, linseed, rape, and hops.

It will be noticed from the annexed tables that there has been an increase in the quantities and value of wool:—

## QUANTITIES.

	Nine Months ended Sept. 30, 1872. lb.	Nine Months ended Sept. 30, 1873. lb.
Wool, Sheep, and Lambs.		
From Countries in Europe	29,852,064	23,586,368
„ British Possessions		
in South Africa	24,749,204	31,325,860
„ British India .....	16,617,885	15,787,373
„ Australia .....	164,866,694	177,150,277
„ Other Countries ...	27,425,838	21,052,187
Total.....	263,511,685	268,902,065

## VALUE.

From Countries in Europe	£1,710,158	£1,352,362
„ British Possessions		
in South Africa...	1,608,098	2,138,930
„ British India.....	738,279	718,404
„ Australia .....	10,266,589	11,199,502
„ Other Countries ...	1,286,872	982,858
Total.....	£15,609,996	£16,392,056

Our exports of butter have diminished from the value of £219,401 to £191,524; those of cheese from £56,180 to £55,159. Of horses we exported 1961, as against 2557 in the nine months of the previous year, the respective values being £126,622 and £137,581.

The following table shews the wool exports, and the countries to which they went:—

## QUANTITIES.

	Nine Months ended Sept. 30, 1872. lb.	Nine Months ended Sept. 30, 1873. lb.
Wool, Sheep, and Lambs.		
To Germany.....	1,434,202	2,265,060
„ Belgium .....	970,399	825,863
„ France .....	691,408	955,734
„ United States.....	1,552,451	676,931
„ Other Countries.....	867,121	639,866
Total.....	5,515,581	5,363,454

## VALUE.

To Germany .....	£119,186	£212,505
„ Belgium .....	86,938	69,959
„ France .....	65,535	82,287
„ United States .....	113,152	52,765
„ Other Countries .....	80,703	53,914
Total .....	£465,514	£471,430



THE WHEAT CROP OF 1873.

By J. B. LAWES.

THIS is the third season in succession in which I have had to report a deficient wheat crop. The deficiency in the produce per acre of the harvest of 1873 is rendered the more serious, since there is not only a somewhat diminished total area under the crop, but a very much larger proportion than usual was not sown until the spring. A wet autumn was followed by a very wet winter, and there was comparatively little opportunity for autumn sowing after October. The early summer, though cold, was not unfavourable, and some fine, dry, ripening weather in July brought on the harvest much more rapidly than had been anticipated. The weather was also favourable during the early part of August, and in the southern counties a good deal of wheat was carried in splendid condition. But from about the middle of the month the weather became very unsettled, in many localities greatly interfering with harvest operations and damaging the crop. There is, therefore, a great difference in the quality and condition of the grain harvested this season; the earlier districts being specially favoured, and the later having suffered much.

BUSHELS OF DRESSED CORN PER ACRE.

Har-vests.	Without manure. Plot 3.	Farmyard manure. Plot 2.	Artificial Manures.			Means of Plots 7, 8, 9.	Means of Plots 3, 2, and 7, 8, 9.
			Plot 7.	Plot 8.	Plot 9.		
1863	17½	44	53½	55½	55½	54½	38¾
1864	16½	40	45½	49½	51	49	35½
1865	13½	37½	40½	43½	44	42½	31
1866	12½	32½	30	32½	32½	31½	25½
1867	8½	27½	22½	30½	29½	27½	21½
1868	16½	41½	39½	46½	47½	44½	34½
1869	14½	38½	28½	34½	39	34½	28½
1870	15	36½	40½	45½	45½	43½	31½
1871	9½	39	22½	27½	34½	28½	25½
1872	10½	32½	29½	35½	40½	35½	26½
1873	11½	26½	22	27½	35½	28½	22½*
Aver. 11 yrs 1863-73	13½	36	34	39	41½	38½	29½†
Aver. 22 yrs 1852-73	14½	35½	34½	37½	37	36	28½‡

WEIGHT PER BUSHEL OF DRESSED CORN (LBS.)

Har-vests.	Without manure. Plot 3.	Farmyard manure. Plot 2.	Artificial Manures.			Means of Plots 7, 8, 9.	Means of Plots 3, 2, and 7, 8, 9.
			Plot 7.	Plot 8.	Plot 9.		
1863	62.7	63.1	62.5	62.3	62.1	62.3	62.7
1864	62.0	62.5	63.1	63.5	62.6	63.1	62.5
1865	60.6	61.5	61.6	61.4	61.1	61.4	61.2
1866	61.3	61.7	61.0	60.1	60.6	60.6	61.2
1867	54.1	61.4	61.0	60.7	59.9	60.5	59.4
1868	61.0	61.6	61.1	62.7	61.1	61.4	61.3
1869	56.1	56.9	57.4	57.2	57.1	57.2	56.8
1870	61.7	63.4	63.3	63.0	62.7	63.2	62.8
1871	54.8	60.0	56.6	57.7	58.6	57.6	57.5
1872	59.0	60.7	60.2	60.4	60.0	60.2	60.0
1873	57.0	57.1	58.1	56.9	57.1	57.0	57.4*
Aver. 11 yrs 1863-73	59.3	61.0	60.4	60.5	60.3	60.4	60.2†
Aver. 22 yrs 1852-73	57.6	60.0	59.2	59.0	58.4	58.9	58.8‡

- \* Equal to 21 bushe's, at 61 lb. per bushel.
- † Equal to 28¾ bushels, at 61 lb. per bushel.
- ‡ Equal to 27½ bushels, at 61 lb. per bushel.

The foregoing table shews the produce of wheat in 1873 from the same selected and differently manured plots, as usual, in the field at Rothamsted, which has now grown the crop for thirty years in succession. It gives also, for comparison, the produce for each of the preceding ten years, the average for eleven years—1863-73 inclusive, and the average for twenty-two years — 1852-73 inclusive:—

In my letter published in the *Times* of September 20, last year, I stated that the season of 1870-71 was, for artificial manures, much less favourable; but, for farmyard manures, considerably more favourable than the average; and that, consequently, the calculated average from my produce, which is considerably influenced by the results obtained by artificial manures, would probably give a figure too low for the average produce of the country at large in 1871; while, on the other hand, as the season of 1871-2 was, compared with the average, more unfavour-

able for farmyard than for artificial manures, the figure derived directly from the experimental results of 1872 would probably be too high for the average yield of the country in that year. A correction was accordingly made, and the imports of the year have shewn that the estimate of the average crop of the country so arrived at must have been extremely near to the truth.

In the present season the unmanured produce is higher than in 1872, and considerably higher than in 1871. On the other hand, reducing the produce in each case to bushels of 61 lb., that by farmyard manure is nearly 7 bushels per acre lower than in 1872, and nearly 13 bushels lower than in 1871; and the mean produce of the three artificially manured plots is more than 8 bushels below that of last year, but almost identical with that of 1871.

Taking the mean of the produce without manure, with farmyard manure, and of the three artificial manures taken as one, we have  $22\frac{3}{8}$  bushels of grain per acre, of 57.4 lb. per bushel, which, reckoned at 61 lb. per bushel, represents only 21 bushels. This is from 4 to 5 bushels less than the average taken in the same way last year, and nearly 7 bushels less than the average of twenty-two years. In fact, the produce by farmyard manure and by the various artificial manures agree very closely with that under the same conditions in the very bad season of 1867.

In the following table is shewn the produce of twenty-two varieties of wheat, grown side by side, in the same field. The previous cropping had been sainfoin in 1870 and 1871, and mangolds with dung in 1872. The whole of the land was treated in the same way; the different wheats were all sown at the same time, and all were top-dressed with nitrate of soda in the spring, at the rate of  $1\frac{1}{2}$  cwt. per acre. For comparison there is also given the produce of most of the same varieties in 1872 and 1871. It should be stated that a different field is taken for this

experiment each year, but that each year the treatment is alike for all:—

DRESSED CORN PER ACRE (BUSHEL). Description of Wheat.					1871.	1872.	1873.
1.	White Chaff (red)	...	...	...	—	—	$40\frac{5}{8}$
2.	Rivett's (red)	...	...	...	—	—	$48\frac{1}{8}$
3.	Chub Wheat (red)	...	...	...	$28\frac{3}{8}$	40	$35\frac{3}{4}$
4.	Red Chaff (white)	...	...	...	$32\frac{3}{4}$	37	$35\frac{1}{4}$
5.	Browick (red)	...	...	...	$35\frac{1}{4}$	$40\frac{1}{2}$	$30\frac{1}{2}$
6.	Red Wonder	...	...	...	$31\frac{1}{4}$	$43\frac{1}{4}$	$37\frac{7}{8}$
7.	Burwell (old red Lammas)	...	...	...	$31\frac{1}{8}$	$41\frac{1}{4}$	$35\frac{1}{8}$
8.	Bristol Red	...	...	...	$29\frac{3}{8}$	$44\frac{3}{8}$	$39\frac{1}{2}$
9.	Red Nursery	...	...	...	$34\frac{1}{8}$	$45\frac{1}{4}$	$27\frac{1}{8}$
10.	Red Langham	...	...	...	$30\frac{3}{4}$	$43\frac{3}{4}$	$34\frac{3}{8}$
11.	Woolly Ear (white)	...	...	...	$31\frac{1}{4}$	$42\frac{3}{4}$	37
12.	Hardcastle (white)	...	...	...	—	$46\frac{1}{2}$	42
13.	Golden Drop (red), Hallett's	...	...	...	$39\frac{1}{2}$	$49\frac{3}{4}$	$44\frac{1}{4}$
14.	Victoria White, Hallett's	...	...	...	$33\frac{3}{4}$	$45\frac{1}{4}$	$38\frac{1}{4}$
15.	Hunter's White, Hallett's...	...	...	...	$26\frac{7}{8}$	$39\frac{3}{4}$	$38\frac{5}{8}$
16.	Original Red, Hallett's	...	...	...	30	$35\frac{1}{4}$	$36\frac{3}{8}$
17.	White Chiddam	...	...	...	$26\frac{7}{8}$	$38\frac{3}{4}$	$31\frac{3}{4}$
18.	Red Rostock	...	...	...	37	—	$46\frac{1}{4}$
19.	Casey's White	...	...	...	$29\frac{7}{8}$	$42\frac{1}{8}$	$37\frac{1}{2}$
20.	Golden Rough Chaff (red)	...	...	...	33	$39\frac{1}{4}$	$38\frac{1}{2}$
21.	Bole's Prolific (red)	...	...	...	$33\frac{3}{8}$	$42\frac{3}{4}$	$45\frac{1}{4}$
22.	Club wheat (red)	...	...	...	36	$45\frac{3}{4}$	$47\frac{1}{2}$
Means					$32\frac{1}{8}$	$42\frac{3}{8}$	$38\frac{1}{4}$

Of twenty-two varieties of wheat, grown side by side, and all treated alike, the produce ranges 2, 3, or more bushels above, and of many 2, 3, or more bushels below the average of the whole; and there is a variation of about 20 bushels between the highest and lowest produce. The weight per bushel also varied from  $56\frac{1}{8}$  to 62 lb., the average of all being  $59\frac{1}{4}$  lb. Such results obviously very much increase the difficulty of forming a correct estimate of the produce of the country at large.

Reduced to 61 lb. per bushel, the average produce of the selected plots in the experimental wheat field in 1873 is about 24 per cent. below the average of twenty-two years. Much of this great deficiency is due to the fact that there was, in all, about double the average fall of rain during the four months of October, November, December, and January; the effect of which would be to wash beyond the reach of the roots a large amount of the nitrogenous manure which had been applied



in the autumn. It is established that that most important and costly constituent of manure, nitrogen, especially when applied in the soluble form of ammonia, is largely converted into nitrates in the soil, and is, in that condition, washed away into the drains or the subsoil when there is an excess of rain. The loss of effect thus arising is strikingly illustrated by a comparison of the produce of the two plots, No. 7 and No. 9. Both received the same amount of nitrogen per acre, which was applied as ammonia salts in the autumn to plot 7, and as nitrate of soda in the spring to plot 9. The result was that while the autumn-sown ammonia salts yielded only 22 bushels, the spring-sown nitrates yielded nearly 36 bushels. Again, another plot, which received the same amount of ammonia salts as plot 7, but applied in the spring instead of in the autumn, yielded nearly 33 bushels.

The loss of the nitrogen of manure by winter drainage would be the greatest where guano, ammonia salts, or other very soluble nitrogenous manure was sown in the autumn, less where farmyard manure was employed, and less still where wheat was grown after clover.

As the deficiency on the manured plots this year is greater than it otherwise would be, in consequence of the washing out by the winter rains of the nitrogen of manure chiefly applied in the autumn, and as the unmanured produce, which represents much of the poor and badly cultivated land of the country, shews a deficiency of only about 18 per cent. compared with the average of twenty-two years, I am disposed to conclude that the

yield per acre of the United Kingdom will be about, but probably not more than, 20 per cent. below the average.

The agricultural returns, just published, shew that the area under wheat in Great Britain was, in the season just past, only about 3 per cent. less than in 1872. As so much less than usual was sown in the autumn, this result proves that there must have been a very unusually large area sown with wheat in the spring. The actual number of acres returned for Great Britain is 3,490,392. The returns for Ireland are not yet available, but it may be assumed that they will bring up the area under wheat in the United Kingdom to about 3,700,000 acres. Reckoning the average yield per acre to be  $22\frac{1}{2}$  bushels, the produce of the United Kingdom would be 10,406,250 qr. The amount of home produce available for consumption would thus be reduced to 9,365,625 qr. Estimating the average population of the United Kingdom during the harvest year September 1, 1873, to August 31, 1874, at 32,366,226, and the consumption per head at 5.5 bushels, the requirements for the year will be 22,251,780 qr., leaving a balance of nearly 13,000,000 qr. (12,886,155) to be provided from foreign sources. Last year I estimated the requirements from abroad would be about 12,000,000 qr., and the actual imports, less exports amounted to rather over 12,250,000 qr. It is possible that high prices may somewhat reduce the quantity this year, but it is quite evident that our home supplies will have to be supplemented by a very large import of foreign corn.

*AN AMERICAN NOTION OF AYRSHIRE CATTLE.*

DR E. LEWIS STURTEVANT, of Massachusetts, recently delivered an address upon Ayrshire cows before an American Agricultural Club. He remarked:—

Although this breed is usually written of as a mixed race, yet the larger portion of their ancestry must have been derived from the native cattle of the country at this time, and however affected afterwards by the introduction of improved animals from other places, yet must the Ayrshire cow be considered as the product of her environment. It will be in place, then, to refer briefly to the antient cattle of the district. The first mention of the cattle of this region is by Ortelius, I think, who writes in 1573 that in Carrick are oxen of large size, whose flesh is tender, and sweet, and juicy. Aiton, writing in 1825, describes the older breed, from his recollection, as having been a puny, unshapely race, not superior to those yet to be met with in many of the higher districts. (Low's Animals, p. 342.) In the survey of Ayrshire, published in 1811, he describes them as being of a black colour. That this breed had a certain uniformity we may infer from the invention of provincial terms to describe the location of the colours. Thus, a dark cow with a white face was termed a "bassened" cow; one with much white on her neck was termed a "hawked" cow, when a strip of white ran along the ridge of her back, she got the name of a "rigged" cow; and if the lower part of her tail was white, she was said to be "tagged." We can also infer the existence of animals sufficiently well defined to form a distinct variety, from the probabilities of the case, for Gallo-way on the south and the Highlands on the north preserve a native race. The very misery of the country would also incline us to believe that there was a native breed, for

it is only as we find intelligence directed toward the improvement of a breed that we find diversity of product. Wild animals have a certain uniformity because they are let alone, and soon become in harmony with nature. Domesticated animals vary because they are exposed to variable conditions, and although they become in harmony with their position, that position has not the uniformity of natural conditions.

## WAS THE BREED IMPORTED?

We thus find Aiton recording the importation, in 1750, of several cows and a bull of the Teeswater breed, of the high brown and white colour so general in Ayrshire in 1810, and he gives a few instances of distribution from his stock. He also gives a hearsay account of some cows, which are conjectured to be of the Dutch, Teeswater, or Lincoln breed, being brought into the district by John Dunlop, of Dunlop; and also the introduction of some stranger cows, in 1769, by John Orr, of Barrowsfield, and thinks that there were probably other importations. As Aiton is willing to quote hearsay, and shews a great acquaintance with the county, it may be inferred that he, at least, had no further knowledge of even doubtful importance than he adduces. I will call attention to the fact that he records the introduction of but one bull—the rest were cows. We must give Aiton the justice of being a good observer, and of giving the credit of the formation of this breed of Ayrshire not to foreign blood alone, but to "selection, cross-coupling, feeding, and treatment." A Mr Home, in remarks before an agricultural club in England, in 1867, says that "others had introduced cows from the Channel Islands, from all which, combined with West Highland blood, the present improved breed of



Ayrshires had arisen." This idea was probably derived from the unknown writer of the "Complete Grazier," of which the third edition was printed in 1808. It is there said (p. 7) "that the Dunlop breed is the produce of a cross of Alderney cows with Fifeshire bulls. . . . The horns of this race are small and awkwardly set. The animals are small in size, and of a pied or sandy red colour. They are, however, admirably well calculated for the dairy, on account of the richness and quantity of the milk afforded by the cows." Is not this probably another account of the Dunlop importation, where we have the Alderneys credited with the improvement rather than the "Dutch, Teeswater, or Lincolns," as stated by Aiton? For corroborative evidence we have it stated by Colonel de Conteur that Field-Marshal Conway, the Governor of Jersey, and Lieut.-General Andrew Gordon who succeeded him, both sent, about the close of the eighteenth century, some of the best cattle to England and Scotland. (*Journal R. A. S.*, 1844, p. 47.) And Quayle, who wrote the "Agricultural Survey of Jersey," states that the Ayrshire was a cross between the shorthorned breed and the Alderney. (Quoted in *Journal R. A. S.*, 1844, p. 47.) We thus see that there is great uncertainty about the early history of these crosses. In Fifeshire there is a tradition that 300 English cows were received there by James IV. of Scotland, as a marriage dowry, with Margaret, the daughter of Henry VII. of England (1501.) This seems plausible, from this district being the country seat of royalty, and the customs of the times.

#### AYRSHIRES A DISTINCT AND NATIVE TYPE.

Yet the introduction of this large number of cattle, if true, has not produced uniformity among the native cattle, for they are described by Low in 1842, as having but little uniformity, yet are spoken of as being good milkers. Crossing, therefore, of itself, could have had but little influence in forming the Ayrshire breed in its earlier stages, for we

have in our records but one statement of the introduction of a foreign bull, and another of the crossing of stranger cows with stranger bulls—the Alderney and the Fifeshire. The introduction of improved beasts, as an index of an advance in public opinion, and the improving tendency of the time, is of importance, for it fixes rather definitely the commencement of the improved breed. But in estimating the influence of a cross, remember that unless great skill is exercised, and care in procuring at frequent intervals fresh blood, the animals which are few in number are quickly absorbed in the preponderating race, and produce but little effect, except stimulating variability, and thus acting as an assistant in the art of selection. Where a foreign bull is used, in the tenth generation there will be but 1-1024 part of foreign blood in the offspring; and Gartner found that with plants one species could be made to absorb another in from three to five generations, and he believes this could always be effected in from six to seven generations. It was selection, aided probably by crossing, and environment, which formed and fixed the Ayrshire breed, and it is unphilosophical to credit the breed with having obtained its excellence from any other distinct race. After its distinctive types were recognized, we find records of crosses with other animals by way of experiment. The Kyloe or West Highland cross brought in the woolly hair, upturned flattish horn, and hardy habits of the Swinley variety, highly valued at the show-yard, and differing in minor details from the prevalent race. The celebrated prize-taking bull "Geordie" was said to have one-eighth of the Highland cross. As to shorthorn crosses we find diversity of statement. Archibald Sturrock, writing in 1866, says, that so far as he is aware, the only shorthorn bulls in Ayrshire, are the one at Balsaggart, about eleven miles from Girvan, another at Woodlands, near Girvan, and a third lately brought into the country by J. N. Fleming, of Kilkerran House, Maybole. (*Pr. Essays High. Soc.*

1866-7, p. 37.) Mr Hope, of Fentonbarns, a shorthorned advocate, by the way, says that half Ayrshire and half shorthorn is the cross generally preferred in the East of Scotland (not in Ayrshire notice), for milch cows. Prof. Norton, in a letter dated 1844, says, "every large farm that I visited had a full blood shorthorn bull" (Farmers' Library, vol. 3, p. 306); but he states that these crosses were raised expressly for fattening. Mr Coleman, of Woburn, England, says the first cross of Ayrshire with the shorthorn improved its value as a grazing, and also as a dairy breed, but that the cross if again put to a pure blood shorthorn, was a worthless mongrel. In 1869, when my brother and myself spent several weeks visiting the farms of Ayrshire, we saw but one shorthorn bull, and found that the Alderney, whether cow or bull, was so far unknown, as to be an object of curiosity even in the mention.

#### SELECTION AND IMPROVEMENT.

In the short limits of an address I am unable to expand the early history as I should like, but I think I have shewn that the Ayrshire cow is a creation of intelligence, and as such, is eminently adapted to the use of the dairyman. Her appearance was between 1750 and 1800, coeval with the improving of roads and the advancing of agriculture. The Earl of Eglinton commenced improvements about the year 1730. His agent, Mr Fairly, introduced the Fairly rotation, and as the leases expired, this rotation, which required that but one-third of the land should yearly be under the plough, was carried upon all the farms. Up to the year 1785, wheat was seldom to be seen beyond the limits of a nobleman's farm. The improvement of the lands caused by improved culture, called for increased rents. As the poorer and more indolent farmers were driven out, the proprietors had a choice of tenants, and while the most active and industrious were preferred, this very circumstance operated as an excitement to others to become more industrious, and every advance of rent called forth a

greater stretch of invention, and served as a stimulus to industry. So Aiton wrote in 1811. Yet there is evidence of other causes at work fully as important and more direct in their action, which I shall have to pass over for lack of time. As the clay soil was in excess, and liable to be poached if worked under the almost continuous dripping of the moist climate, and as both climate and soil were suited to raising grass and herbage, great attention was paid to the dairy. The better milker was retained, while the poorer was rejected, and those shapes which experience shewed to exist in the better cows, were sought for in the younger cattle, and aimed at in the coupling; for the shrewd Scotch farmer quickly learned that like produced like, at least in practice. Thus the Ayrshire was being builded up. Thus she took on the shape of a complete dairy animal. From the circumstances of her surroundings she became eminently fitted by the gradual process of adaptation to uses, and selection, to fill her place in Ayrshire husbandry. A perfect fill-pail, her udder became developed in capacity and shape. No bottle udder here to fatigue and distress the cow in the pasture. Her hair became soft and woolly, a protection from the climate. Her fore-quarters light, her hind-quarters heavy, for the Scotchman had discovered that a cow milked by her mouth and through her throat, and sought digestive capacity. Each advance must have been gradual, and every step must have been fixed as it was gained. Her type is the type to be sought for by dairy farmers, and retains its fixity in America as well as in Scotland. If we collate the points of six noted dairy breeds, the Fifeshire, as described by Magne; the Yorkshire, which is the milking unimproved shorthorn, by Haxton; the Jersey, by Allen; the Suffolk, by Kirby; the Brittany, by Gamgee; and the Ayrshire, by Aiton, we find that the preponderance of points mentioned, are as follows:—

Head, long.	Thighs, flat and thin.
Muzzle, fine.	Ribs, arched.
Throat, clear.	Pelvis, roomy.



Neck, slender.	Belly, large.
Shoulders, thin.	Legs, small and short.
Chest, deep.	Udder, large.
Brisket, small.	„ square.
Back, straight.	„ well formed.

Here, also, we find the Ayrshire cow having all the marks of a dairy breed, and if we place any value on external shape as indicating internal function, we are bound to give the preference to this breed. So let any farmer, if he place any dependence on his judgment of form, if he lay any stress upon the shapes of an animal, let such a farmer examine carefully into the merits of the Ayrshire before purchasing; for I hope to shew, before I get through, that such is clearly his duty.

#### THE AYRSHIRE AS A MILKER.

I am not here to decry the shorthorn, for I believe in the noble, massy beast. I believe when grazing is the object, the shorthorn will claim the preference over any other breed. The promise of this breed, however, is to lay on fat; they are bred for this purpose, and the irresistible, unmeasured force of inheritance all tends towards this function. Why expect to raise good milkers here? Why seek indications of good milking families? Why seek the antient records of shorthorn achievements at the pail, when evidence of fat was weaker than at present, on account of being nearer the source of the improved

breed, to prove the value of the animal for milk? This is simply a question of fact to be decided by scale or measure at the present day. Shorthorn milkers are found both among thoroughbreds and grades, but, so far as I have observed, the same uncertainty attends the production of good milkers among fashionable strains of shorthorns as among the mongrels, misnamed natives. It is the shorthorn cow which departs from the type of the improved shorthorn which is the best milker. When we hear the fact of a shorthorn of a fashionable strain giving much milk, it is so heralded as to shew that, in this case at least, an exception goes to prove the rule. The Ayrshire is bred, and has been bred for milk; her inheritance is all in the line of milk-producing. Her form indicates it; her records prove it. When aged and dry, the same functions which ordinarily fill the udder, fill her muscles with fat; but while milking, inheritance, intensified yearly by selection, turns the energies of her system towards extracting materials from her food, and secreting the larger and richer part in the udder. As the shorthorn stands with the grazier, who has tried their quality, so does the Ayrshire stand with the dairyman. By seeking improved breeds, the farmer is adding materially to the profits of his farm, for he is utilizing the great power and unerring certainty of inheritance.

## ORCHARD AND TALL MEADOW GRASS.

MR W. F. TALLANT, who is a man of some repute in his own county, Montgomery, Va., thus writes on the above subjects to the *Albany Country Gentleman*:—On these two grasses the foundation of all farming should rest. As long as we have them, I do not think we should ever sow any other grasses, save possibly a little clover to mix with them, which will die out as the orchard or oat grass thickens. Orchard grass, with us, is ready to cut by the first week in June. It will grow more in one week (after cutting) than blue grass will in a month. It makes a larger aftermath, and makes it quicker, than any other grass I know of. Land will improve with a sod of orchard grass (or any other kind) on it, no matter how you treat it. It is the most profitable crop we can raise, as a general farm crop. I will try to give the reasons for my belief.

The first of June is generally the most convenient of all times for cutting hay—before wheat harvest and after planting. Timothy comes in so near wheat harvest that it is often left until that is over, when it is entirely too ripe. Orchard grass will grow more in one week than blue will in a month—I have Flint's word for it, as well as my own experience. I have tried it on rich and poor land, and the aftermath has always been heavier (weighs more) than any other grass that I know of.

I have stated that land with a good sod on it will improve. I have never seen or heard of a sod of orchard grass that did not steadily improve, if not pastured. What I mean is, that a sod of orchard grass may be mown as often as you like, and everything removed from the ground; or it may be allowed to go to seed, and then the seed, and the grass under it, both removed, and yet the sod will continue (if all weeds are carefully

kept out), to thicken, and produce more hay or seed, year by year. It is impossible for the grass to make more and more hay unless the ground is improving.

Within the last few years, several old fields have been broken up in my neighbourhood that have been neglected for twenty years or more, with cattle enough on them to eat up every blade of grass that ever got 2 inches above the ground. Blue grass sod formed over them, and so the fields remained. One of these fields brought 50 bushels of corn per acre, without manure of any kind. On the others the corn was also fine, but I do not know how much. These fields had certainly improved. That a field will improve faster when everything is mown from it than when everything is grazed from it, I know by my own experience, and any one may be convinced by trying two fields, side by side, a few years. I may mistake, but from all that I can see and learn, I am convinced that land which has a sod of grass on it will slowly but steadily improve. It will certainly not get poorer, no matter how often mown or how closely pastured.

I now come to my last statement—that orchard grass is the most profitable general farm crop we can raise. My system for its management is as follows: For hay mow the first week in June—a little sooner than most people mow. Mow again about Sept. 1. What grows after that I let stay on the ground as protection to the sod during the winter and for mulch the following summer. If I leave for seed, I cut the seed; then immediately cut the bottom for hay, leaving all that grows afterward on the ground, and never allow a hoof to be seen in my orchard grass fields. Cattle, instead of being the making of our farms, as most people imagine, are the ruin thereof. If people will keep cattle, let them soil. If I can help it, I never intend to



allow another head of cattle to go out of my barn yard. Where land is worth 50 dols. an acre, no one can afford to keep cattle otherwise than by soiling. But to return to my orchard grass. The profit on good land is about as follows: You get one and one-half ton of hay at each cutting, making three tons per acre; with us hay is worth 15 dols. per ton; thus each acre brings 45 dols. The expense of cutting and stacking is 2.50 per ton, or 7.50 per acre, which leaves us 37.50 dols. per acre clear. The seed, with the hay cut immediately after, will probably pay as well. What crop will pay so well, keep up the land, and give us as little trouble? In sowing for hay, I like to sow 2 bushels of orchard or oat grass, and one gallon of red

clover. If you cultivate for seed, leave out the clover.

Tall meadow oat grass and orchard grass are very much alike in all respects save appearance. The oat grass, for hay, yields more, but is not quite as good in quality for seed; it makes more seed, but does not bring quite as much per bushel here. What I have said about orchard grass is equally true of tall meadow oat. I think the oat does best on poor land. Persons sowing orchard grass must not expect too large a crop the first year. Like many other grasses, it takes two or three years to come to perfection. I generally sow in March, but where the winters are not too severe, it is best to sow the last of August, or at latest the 10th of September.

### UNEXHAUSTED IMPROVEMENTS.

THE tenant-farmer who enters upon the possession of his farm for the precise period defined by his lease, has ample ground for the complaints he is making of the present state of the law which governs his relations with his landlord, his land, and any improvements which, in the course of his tenancy, he has found it necessary to make. The principle of fairness decidedly does not govern those relations, and when it is fully considered that the duty of duly developing the soil for a period of years devolves upon the tenant, the absence of that very necessary principle appears more startling. The law of England, as it exists at the present moment, says, in the abstract that every improvement of a permanent character accomplished by a tenant during his term of tenancy becomes, as it were, part of the land, and consequently the sole and absolute property of the landlord. Putting out of consideration the glaring iniquity of this principle, it cannot be surprising that one of its effects should be the soil becoming insufficient,

as a producer, for the needs of the country. There is absolutely no encouragement for an outlay by a tenant upon improvements, unless he has a sufficiently long term, or is equally confident of a renewal, to warrant his investment, which is by no manner of means the general case. On the other hand, the landlord's is considered a sacred right, and the tenant can be made responsible for many things he may do in the way of cutting and improving, supposing in so doing he may happen, however inadvertently, to tread upon the toes of his landlord in the slightest conceivable degree. But apart from this in cases where tenants do improve permanently, they suffer under still greater disadvantages. We take as an instance a holding under a lease for twenty years, in the tenth year of which term an improvement is accomplished, which takes another five to develop to profit, and the tenant being unable to obtain a renewal at the expiration of this term, has to turn out without any compensation, the fruits of his improvement becoming the property of

his landlord, and descending to his successor. This is an extreme case, no doubt, and one that perhaps rarely occurs, but it demonstrates the state of things existing. Tenants should be relieved at once, and their right to compensation for unexhausted improvements legally acknowledged and adjusted. No tenant, if he be wise, will venture upon improvements, unless he sees his way to a term of holding of sufficient duration to bring him a proper return for his money, and it is very hard upon him, when the time arrives for the farm to change hands, to see his improvements, perhaps in the zenith of profitable operation, pass into the possession of another, without being able legally to demand compensation for it.

The necessity for an alteration in the law relating to these unexhausted improvements becomes more apparent every day. Farming is not what it was ten years ago, and the engineer is becoming, on arable farms of moderate size, almost as requisite a personage about a field as a ploughman. Statistics shew that the crops produced are very insufficient for the consumption of the country.

Mr Howard, M.P., read a paper at the Social Science Congress, at Norwich, on Monday last (which we give in full, as corrected by the author), which deals with this question, and, to a great extent, we agree with the view he takes of the case. Primarily, he is strongly of opinion that an alteration in the present presumption of the law is expedient. He points out the changes that have occurred in the system of farming of late years, and explains that the tenant-farmer is in a very different position now than when the landlord executed improvements, the farmer confining his efforts to the raising of crops by the means of what manure he could obtain from his own stock. He is of opinion that a change in the law would largely increase the productiveness of the farms, and he shews by figures the results

obtained by several farmers from judicious improvements, but we hardly agree with his deductions in respect of these isolated cases. All farmers are not capitalists, and it would have been more satisfactory if he had confined himself to the hardships inflicted on the out-going tenants by the present unequitable customs.

Mr Howard evidently considers that scientific farming is to be the farming of the future, and no doubt he is correct, but he does not appear to attach sufficient importance to the fact that there are numbers of farmers who farm upon strictly conservative principles without the aid of science, who are likewise prevented from improving their farms in consequence of the existing position of matters. It would be more likely to be productive of good result, if the discussion of this question were confined to the relative position of landlord and tenant, the question only really arising between them, and it should be dealt with in a properly fair and equitable spirit. At present it is clear that all the benefit is on the side of the landlord, and all the disadvantages on the side of the tenant. It is unsafe to argue that because a few capitalist farmers produce good results, the whole, providing they were relieved from some of their present disadvantages, would be enabled to do likewise; but it is equally clear that the existence of those disadvantages checks the due development of the soil as a producer. What the out-going tenant is entitled to, is the right to recover fair compensation for value added to his farm consequent upon improvements effected by him during his tenancy of it, and whether he obtain that compensation from the landlord, or the in-coming tenant, is equally a matter outside his consideration, so long as his right to it is conceded. No elaborate legislative Act is necessary to accomplish the result desirable, a simple Bill, defining their respective rights, is all that is required.



## CO-OPERATIVE FARMING IN HEREFORDSHIRE.

NOT a few have advocated this system of farming. As we stated last week we do not quite approve of it. The following is an account of the Bampton Co-operative Farming Society (Limited), as given by a correspondent of the *Labour News*.

The objects of the Society—which is, as may be seen from its title, registered as a trading company under the Limited Liability Act—are stated in the rules to be, “to carry on in common the trades of farmers, gardeners, quarryers, and planters and setters of trees, and to purchase and sell land.” Being as yet only in its infancy—its existence dating only from March last—the Society has hitherto concerned itself only with the first of these objects. It rents a farm of 148 acres, consisting about half of pasture and half of tillage, at a rental of £1 per acre, being the same amount as that paid by the out-going tenant of the property. The capital of the Company consists of shares of £5 each, of which £1 may be paid on deposit, and 2s. every week, until the whole £5 is paid up. The amount of capital at present subscribed is £612, of which £185 has been supplied by nine gentlemen, who take an interest in the movement, and the remainder (£427) by 19 labouring men. Mr Morrison, M.P. for Plymouth, subscribed no less a sum than £80, besides helping in what appears to me a more important matter, viz., the drawing up of sound rules for the Society's government. The largest sum subscribed by any labourer was £50; and this man—a genuine working man—is the manager of the farm. The sum of £714 has been spent in stocking the farm, and on labour, &c. There is a good-sized farm-house, in which the manager and one labourer (being all the hands at present employed) live. They have their rent free; and the former receives 18s. 6d., together

with an allowance for going to market, while the latter receives 16s. No one who is not a member of the Society is regularly employed on the farm, though labourers who are not members are occasionally employed on jobs.

The government of the Society is by a Committee of five, elected yearly at its annual meeting. This Committee has the “control of all business carried on by or on account of the Society.” It must meet at least once a month, three forming a quorum. Then there are excellent provisions with regard to the definite and full statement of the Society's affairs at the annual meeting, the audit of accounts, the expulsion of members convicted of felony, &c. The application of net profits is to be as follows: 10 per cent. is to be devoted to a depreciation fund; an amount not exceeding 5 per cent. to the payment of a dividend to the shareholders; then there is to be paid “to every person employed by the Society as an officer of, or labourer for, the same, such sum of money as shall neither exceed one-tenth part of such net profits, nor one-sixth part of the salary or wages earned by such officer or labourer during the twelve months.” Any profits remaining after these payments are to be applied (1) “in forming a reserve fund to provide against casualties,” and (2) in paying an additional dividend. Then there is a provision that “the member shall have power to appropriate a sum of not less than 2½ per cent. of the net profits in forming a fund to promote the moral and intellectual welfare of its members, or to spread among their countrymen a knowledge of the principles of co-operation.”

These, then, are the leading principles upon which the Bampton-Bryan Co-operative Farming Society is based. It will be seen that the primary virtue of the Society consists in its offering an incentive to providence,

by giving agricultural labourers an investment for their savings in the land. We are all more likely to save money when we see a good investment for it in the special business which we understand and are connected with. At Leintwardine the agricultural labourer sees this farm before his very eyes; and then there are his fellow agricultural labourers, not only working—some of them—on their own property, but drawing—all of them—the profits of the concern. He himself becomes, in fact—if he joins the Society—a farmer, and takes the farmer's profits. He sees thus the reason for saving in a new light. Antagonism between labour and capital ceases when the labourer becomes a capitalist. But how is an agricultural labourer to save, on his wages, enough to belong to such a Society? I leave others to answer this question, and content myself simply by remarking that the labourers at Leintwardine have managed it.

Wages there, are, at the present time, 17s. a-week. In 1871 they were from 10s. to 12s. One of the labouring shareholders of the farm, for example, has raised his capital gradually out of wages which were, when he commenced to saving some years ago, at 7s. a-week, and two years ago only, on an average, at 11s.

I should not omit to mention that piece-work is much encouraged by the Leintwardine co-operators. They intend to do all they can on that principle at the farm. In this manner it is manifest they will possess peculiar advantages. The manager, working on the land himself, will know better than an ordinary farmer can upon what terms the work should be laid out. Altogether, the experiment must be watched with peculiar interest, and I cannot see why, with "a hard pull, and a strong pull, and a pull altogether," it should not be made a success.



## The Old Farmer's Note Book.

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A want of occupation is not rest,

A mind quite vacant is a mind distressed.

I REMEMBER how apt the above quotation was made by Lord Brougham at one of the meetings of the Social Science. Lord Brougham was evidently a great admirer of Pope, because he seldom missed an opportunity of quoting him. He knew more about the poet than the Lord Chief Justice. He would not have confounded the "Essay on Man" with "English Bards and Scotch Reviewers." The last time I happened to hear Lord Brougham was in Edinburgh, and then he quoted from that "Essay on Man" which Dr Kenealy *misquoted*, and the judges knew not or were diffident about expressing their opinion as to the authorship of the lines. His quotation was with reference to the subject of combination, a matter which is exciting much interest at the present time. It was this:—

"When jarring interests themselves create  
The according music of a well mix'd state."

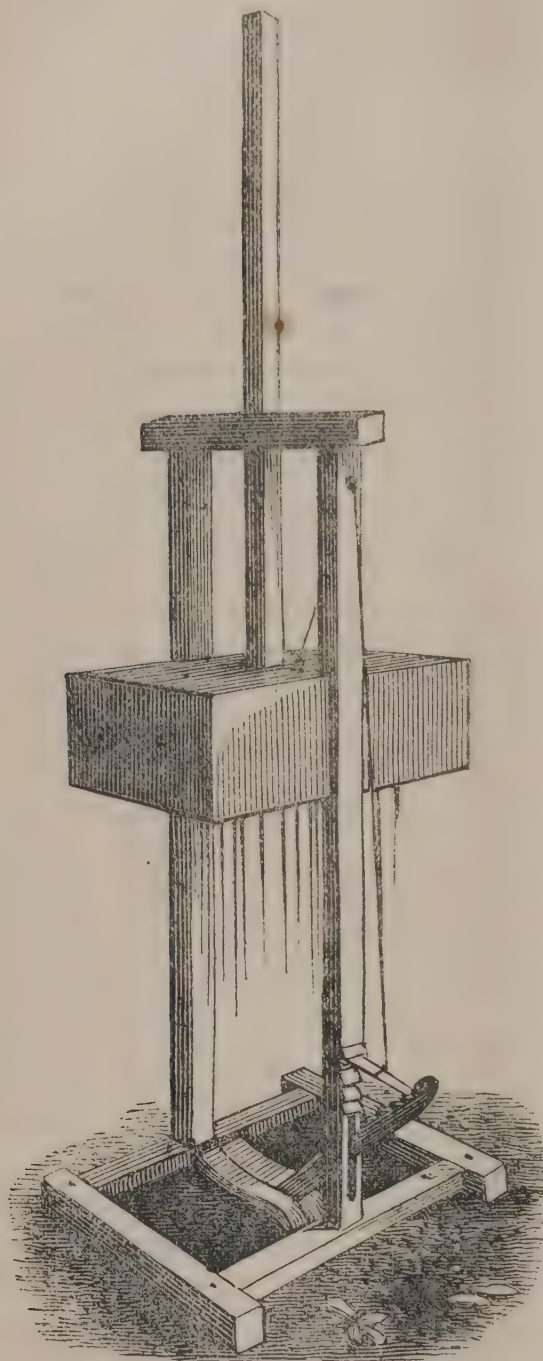
Before making use of this quotation, Lord Brougham had said "the vast advantages of combination without the least risk of its powers being abused must be obvious upon the simple statement of the co-operative principle. No one can have any interest in perverting its powers, for, great as these are, their confinement to one object is strict and rigorous, and each individual is interested in never being for one instant diverted to other purposes, even if such diversion were practicable. But though the advantage of combination is obtained, the individual is not lost in the mass—his separate existence is fully preserved." Now that is exactly where I differ from the defender of Queen Caroline. The individuality is not preserved in combination, and often the best men have to suffer for the incompetent. I do not know whether an old man should be tolerated or not, your younger readers will mayhap inform me, but it seems to me that I have been running very far away from my text, and have much need of toleration. Occupation is a good thing. That is what I started

with, and up to this time I have not told your readers why. I will do so now, or at least I will give a jotting from my Note Book which fully bears out my own views; for, mind you, although I am now what you may call a half kind of idler, I was once a worker.

Occupation! what a glorious thing it is for the human heart. Those who work hard seldom yield to fancied or real sorrow. When grief sits down, folds its hands, and mournfully feeds upon its tears, weaving the dim shadows, that a little exertion might sweep away, into a funeral pall, the strong spirit is shorn of its might, and becomes our master. When troubles flow upon you dark and heavy, toil not with the waves, and wrestle not with the torrent; rather seek by occupation to divert the dark waters that threaten to overwhelm you, into a thousand channels which the duties of life always present. Before you dream of it, those waters will fertilize the present, and give birth to fresh flowers that will become pure and holy in the sunshine which penetrates to the path of duty in spite of every obstacle. Grief, after all, is but a selfish feeling, and most selfish is the man who yields himself to the indulgence of any passion which brings no joy to his fellow-men. Young farmers, take advice from an old one, who is now, as the Scotch would say, an "auld feckless body." I'll warrant that this about occupation is one that, if you accept, you will never repent of.

Moles are a nuisance. Young and old farmers alike must admit this. Their presence no doubt shews a tolerably good soil, but it is also at times very fatal to the drainage. On my travels on the Continent I noted once a very ingenious trap, and with your permission I will figure it. It was in Belgium that I took a note of it. As will be seen from the engraving, it consists of a heavy block of wood, armed below with long spikes, is suspended in a frame-work by a cord that passes through one of the uprights of the frame and is attached to a catch below. This

catch is so arranged as to be held in place by the trigger, and liberated whenever the trigger is lifted. A space of the run is trodden down,

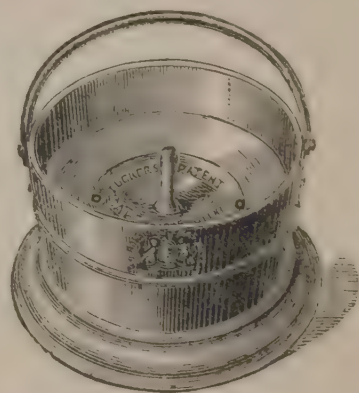


Belgian Mole Trap.

and the trap placed over it; the mole, in removing the obstruction, lifts the trigger and springs the trap.

I saw the other day what I considered a very good arrangement for feeding calves when it was inconvenient for their mothers to suckle them. Probably your readers may have seen it, and that you have taken notice of it before. That does not matter. With your permission I will

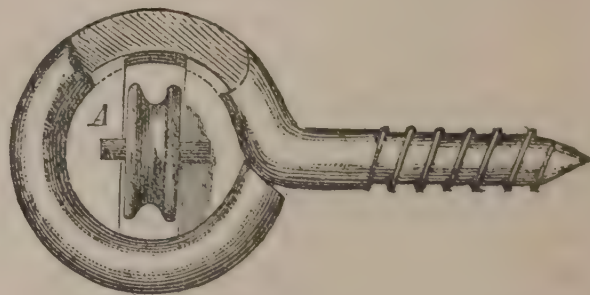
state that the following advantages claimed for it by the patentee Tucker, and his agents, Messrs Beare, Son & Co., Newton Abbot, are not exaggerated. "It [the machine] effectually removes the risk of the calves being blown or swollen, and it gives them the appearance of having been reared by their dams." I have sent one up to you, Mr Editor, so that you can have it tested yourself. The only thing that strikes me



is, that calves are in the habit of looking up to the udder instead of down, as they needs must to this machine, but a few days I think might alter the inclination of the head. If not, I hope you will tell me, Mr Farmer.

[We give a cut of the Machine sent by the Old Farmer.—ED.]

Another very ingenious invention I once came across, was an adjustable pulley bolt. It is very simple in construction, and will be found useful for many purposes, lifting sacks, &c. It is an ordinary screw-eye bolt, with which is combined a movable pulley wheel. In the inner side of the eye a groove is formed. The pulley



revolves on an axle, the ends of which are made in segments of circles, A, the circumferences of which fit into the groove in the eye. By this construction, the pulley may be turned in any desired direction by moving the ends of its axle. The screw-eye may also be turned in its support, so that the cord passing around the wheel may be led as required.



## The Garden.

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### *THE PLANTING OF STRAWBERRIES.*

THE planting of Strawberries for permanent plantations should have been completed by this time. Many persons think it the best plan to sever the young runners or plants from their parents, and put them into quarters specially prepared for fruiting, but this is not a good practice. We ought to say that it is good enough where mildness prevails, where the cold of rigorous frosts is not felt, and where spring comes in and goes out with balmy breath. Such localities, however, form an exception to the general rule, and gardeners and villa gardeners must make their preparations accordingly to meet the foe. This can only be efficiently done either by protection or by securing plants of sturdy growth. The former named mode of encouragement and preservation involves too much the question of expense to be hearkened to in cultivating upon a large scale; the latter is within easy reach of all such as are willing to try; and it is to this more important particular that we would direct our readers' attention in the meantime.

All Strawberry plants, then, to be anything like remunerative, must be strong, healthy, with their leaf-tissue as well consolidated as is practicable, to begin with, so that alternations of weather may be the more successfully battled with. To secure this, the young runner should be carefully provided for as soon as it is in condition to be parted from the parent plant. The earlier in the season that this can be attended to the better the success of the following year's crop. This early working secures strength of plant sufficient to carry a full crop at the existing Strawberry season. Those who force Straw-

berries in heated houses or pits have always the advantage over those who do not, because of their being in the way to get runners much sooner from such plants planted out into beds after the fruit has been gathered from them. It is only the few who do this sort of thing, and therefore we need not dwell upon Strawberries cultivated in that particular way. But the ordinary crop from the open garden furnishes runners to be nurtured much sooner than is generally taken advantage of. These runners often are allowed to become stunted in growth, the freshness of youth is not fully appreciated, and the consequence is that the roots are in a sort of enfeebled quiescent state before many give them an opportunity of being actively called into play. This is what we wish our readers to avoid, and we would fain encourage them by telling them how profitably to secure good plants and a fair crop the ensuing season—how, in fact, each villa gardener may save a year by being prompt in measures, and adopting such well-considered means as will lead towards success.

All Strawberry runners or young plants should, as soon as they are of sufficient strength to be detached, be planted in nursing beds. It is well known among gardeners and planters generally that younglings get along much better under a species of nursing. They require the protection which the one gets from the other, small enough, certainly, to look at from our stand-point, but of high importance to the growth of the plants themselves. The nursery encourages root formation to a higher degree of speed than could be had if the plants were isolated at long dis-

tances, as the wind and the rain and the frost do not act so hostilely to the nursery-grown plantations. You may, in truth, lose a valuable parcel of coddled plants if planted out into permanent quarters, which might nearly all be saved by close planting—by planting after our nursing fashion.

The gardener is expected to go to his plantation about the middle of August, and after deciding upon the sorts best worth perpetuating, he makes his selection of runners. These runners are cut off with a knife, leaving from 6 to 9 inches of the runner or surface-growing stolon, so that by its assistance the young plant may be all the more firmly secured in the ground. With the roots embedded in good light friable earth, they soon propagate and add to the gloss of leaf and to its persistency. Any novice may know a healthy well-grown Strawberry from its broad glossy leaves, its short footstalk, and its tendency to multiply itself by sending out fresh runners. These attempts at multiplication must be summarily dealt with, to throw vigour into the selected plant. All runners should be pinched off with finger and thumb so soon as they elongate. But some may be inclined to ask us what is all this for, and what good is it to lead to? We may state that the preparation is for the production of stamina, for the development of leaf and root, while development in the highest degree is practicable. We have already said that a crippled development is not a productive one, and we may be pardoned for again asserting that, without studying Nature and taking advantage of its progeny while the full power of vitality is within them, anything we can afterwards do can never be accounted first-rate cultivation. That is exactly why many Strawberry growers lose quite a full year with their young plantations. They leave growth and other collateral agencies to chance, and if it does happen to be fortuitous, no thanks to the cultivator. All first-rate plantations are made up of plants that have been cultivated in what are called nursing beds.

These nursing beds are selected on a good

site, where soil and situation is favourable. The more of the sandy loam in the nursing bed, so much the more kindly will the runners take to it, and the better the site in respect of solar heat, so all the better for the development of growth and the proper groundwork for the evolution of blossoms and fruit.

But all the preparatory nursing bedding is to the looker-on of the present for advice, a thing comparatively of the past. We said August, and when this meets the reader's eye, it will be the first week of November. No leader of a public organ would be justified in giving a dissertation upon a subject of the past, if the present were more immediately before his eye. We are quite prepared for this estimate of our dealing with the subject in hand, and our reply to it is that we have touched thus fully upon the preface because of its essentiality in preparing the novice for what is to follow.

If there be nursing beds, they must have been made to serve some useful purpose, and that purpose is to provide plants with a constitution and general bearing that will promote the object in view. That object is strength of plant to withstand the opposition of hostile forces, and after weathering these forces, to prove reproductive at the reproductive season. These plants are now, in this first week of November (if they have been attended to in the way we desire, and in the way we have described), strong, vigorous, full of roots, and fit for transplanting into a permanent quarter without the slightest tendency to give way on account of the temporary shift. We would very much desire that our readers should have anticipated us in all this: that their runners should have been taken off in time, that they should have been planted in nursing beds, that they should be in the very height of exuberance, and that now, with one of the many trowels which we have illustrated, that they should be fit for removing into quarters set aside for Strawberry culture, with a ball of roots much more full and vigorous than is generally to be had



from Strawberries that grow in pots. All that we can say is that where no such provision has been made, no extra results can be looked for on the return of early summer. Where the plants have been left to chance, there will be few berries to feast the eyes upon in July; where they have been treated in the generous way we describe, there will be an overflowing yield that will satiate the appetite and please the most avaricious in their longing for a money value return.

Some plant singly, some plant in threes, some plant thickly, and some plant so that their plants may touch one another the first year, and form beds where it is impossible to distinguish one from another. Much the best plan in a general way is to plant either singly or in threes triangularly. Singly the best individual fruit is produced; triangularly in threes there is abundance of good fruit without the extreme size which may be had in the first instance; while if they be planted to fill up quickly, into beds is possibly the

best mode for a market gardener. Growers may make their own choice in this way, guided by circumstances. In any case, good fruit will be the result. The great desideratum is to get strong young plants that have a constitution that has never been impaired by checks, but that is vigorous from the opening days of growth until the full finished plant is made.

There is far more in the mode of Strawberry cultivation than many would suppose. Because fruit of ordinary flavour and of ordinary size is producible without much labour, people are apt to be led away in thinking that no particular culture is absolutely necessary.

We hope our remarks will shew the fallacy of the supposition. The better we can assist Nature, the more bountiful will be her produce; and if we happen to encourage her at the proper time and in the proper way, our efforts will be attended with very considerable gain, both in the size and quality of her delicious and health-giving fruits.

### *HOW TO GROW MUSHROOMS.*

MUSHROOM cultivation has often been a puzzle to many who have attempted it. The same care and labour, which in many instances have been crowned with success, have often at other times been bestowed in vain, the smallest hitch sufficing to upset the arrangements and calculations which were expected to set failure at defiance, and make an abundant crop a matter of certainty. Their liability to suffer fatal effects from the slightest defect in their management has no doubt had the effect, in numerous instances, of disgusting the grower, and causing him to turn his attention to some more certain crop, as well as of deterring many whose fondness of the delicacy would induce them to embark in its cultivation, were it not for

the mystery that is supposed to hang over the requirements for its culture, and the discouraging amount of success which he may know to have resulted from the attempts of others. The value of this crop is well known to most gardeners as well as housekeepers, and any one whose ideas on the subject may be rather hazy, will soon have the dimness dispelled if he should be called upon to provide a supply during the winter months, especially if the presiding goddess of the kitchen should not happen to be blessed with a quite angelic disposition.

That there is no royal road to success in Mushroom culture as well as to the attainment of many more important subjects, is certain; but there are certain general rules



which must be observed if failure would be avoided and success brought within the range of possibility; and to these it may not be out of place to call the attention of such as may feel inclined to embark in this field of horticultural experiment. The first of these is of necessity a place to grow them in, for we must have a scene of operation. This may be a Mushroom house, of the legitimate type, as it may be called, where in tiers of stages strongly boxed in, and arranged solely for Mushroom culture, the chances or possibilities of failure are sought to be reduced to a minimum, and where every provision is made to facilitate their working, and bring all the conditions under the control of the management, success will appear to be ensured. Failing this adjunct, which is not always present in villa gardens, any good cellarage may be appropriated, and this, if at all in good condition, is by no means a despicable substitute; indeed, we have seen quite as fine and abundant crops in an underground cellar as we ever saw produced under any conditions. This cultivation is also sometimes attempted in ordinary sheds or under stages &c., but these are at all times uncertain, and need hardly be mentioned here. In preparing to make the beds, the great necessity is to have the material in proper condition. The utmost attention is necessary to ensure this. The horse-droppings must be daily collected from the stable, and after being cleared of the rough straw should be spread out thinly in an open shed, where they can be sheltered from rain. The heap must be frequently turned over and shaken up to allow it to dry, and to prevent fermentation; and fresh contributions must be added every morning until a sufficient quantity is procured for the formation of the projected bed according to the desired size. As soon as the heap of droppings has attained a medium dryness, so that no danger from fermentation, or sweating, as it is technically termed, is likely to ensure, it may be removed to the house where the bed is to be prepared, and being spread out evenly in thin layers, must be

beaten firmly, adding fresh layers, and continuing the beating until the desired thickness, from 1 foot to 15 inches, has been reached. Into the bed thus made a thermometer must be inserted, to be consulted daily as to the rise of temperature. If the material has been in proper condition, the heat will not rise higher than 90 deg., and if it should exceed this, holes must be made by driving a thick stake at short distances, into the bed or part of the top may be removed for a few days till the heat abates, when it may be replaced and smoothed down. As soon as the thermometer shews a decline to 85 deg., the operation of spawning may be performed. Good fresh spawn must be used, and the cakes may be broken up into pieces about 2 inches square. These are inserted into the bed at distances of 8 to 10 inches apart, plunging them about 2 inches deep, covering up again, and beating all firmly down again. The thermometer being again inserted, the bed may be left for two or three days until a decline towards 70 deg. is registered, when the third operation of soiling may be performed. Good fresh loam is the best soil; that can be used moderately dry, and being spread to the depth of 2 inches should be firmly beaten until it shews a compact level surface; the indispensable thermometer being again called into use and frequently consulted. A rise of 2 deg. or 3 deg. of temperature, will probably be noticeable for the first four days, and this will do no harm if it does not become violent, but it will probably soon begin to subside; and when 65 deg. have been reached in the downward course, a slight covering of fine hay will be beneficial, and will assist greatly in husbanding the internal heat of the bed. In ordinary weather the heat emitted from the bed will be sufficient to maintain a high enough temperature in the body of the house, but in midwinter, especially during severe cold, it will be necessary to resort to artificial means to prevent the temperature from falling lower than 55 deg. in any stage, with from 5 deg. to 10 deg. additional, while the young Mush-



rooms are just shewing themselves. The house must be kept close at all times, and the path may be occasionally sprinkled with water, so that a moist foggy atmosphere may be created. If this be regularly attended to, little or no watering should be required, but if the surface of the bed should at any time appear to become rather dry, the hay covering may be well moistened with tepid water. In general this will be found sufficient, but if the dryness be excessive it may be removed and a slight watering applied, sufficient to moisten moderately the top coating of soil. In six or eight weeks, if all has gone well, the Mushrooms will begin to shew themselves; and as soon as they become pretty well developed, it is advisable to remove the hay entirely, as it will be found to loosen the young tops as it is turned over; and as the bed will then be fully exposed, it will become more and more necessary to maintain great moisture in the atmosphere. The duration of the crop is uncertain, and depends greatly upon the making of the bed, and perhaps a good deal upon the quality of the material; and gene-

rally it will be advisable to continue making fresh beds as rapidly as the necessary quantity of droppings, &c., can be got together.

The only insects which are troublesome are wood-lice. These generally find their way to the Mushroom house in large numbers, and are not easily got at, so that they are somewhat difficult to combat. The proper way is to move the hay entirely, and pour boiling water into the cracks and crevices where they run for shelter. This if repeated may thin their numbers, but their eradication is almost an impossibility.

For summer supply beds may be formed in any close shed, and they sometimes succeed very well, but an underground cellar is the best place of all during the hot months. By keeping up a succession of beds in cellars in summer, and Mushroom houses in winter, an uninterrupted supply may be provided, independent of the usual out-door supply, which, however, is not of much account, unless in the warmer and more fertile plains, and even there is exceedingly variable and of short duration.

## CARNATIONS AND PICOTEES.

THESE are old and well-known favourites of the flower border, and subjects which have always held their own against the opposition of all their compeers. Among florists' flowers they have always occupied a place in the front ranks, and the attention which has been paid to their cultivation and the improvement of the flowers from a florist's point of view, have led to the introduction of many superb varieties greatly in advance of their progenitors. The habit of growth is certainly not an attractive one. From their earliest stages, they demand the most unremitting attention, which becomes still more imperative as the flower shoots begin to push and the buds to shew themselves. In most

localities they grow freely, but they are liable to many mishaps, and their enemies are, especially as regards the wireworm, very deadly and quick in doing their fatal work, so that it is imperative for the cultivator to be constantly on the watch. The propagation of these attractive plants is accomplished chiefly by layering the young growths, or, as it is generally termed, the *grass* produced by the established plants. This operation is best performed as early in July as possible, if the growths are sufficiently strong and long enough to be operated upon. A little fine sandy soil must be prepared, and after being carefully examined to see that it is free from insects of any kind, it should be spread round

the plant to the depth of a couple of inches. The young growths are then bared of the lower leaves, and an incision made at a joint on the under side, drawing the knife in an upward direction and making a cleft about  $\frac{3}{4}$  of an inch in length. The top of the branch being bent inwards opens the wound, and it is then pressed down so that the soil is admitted between the separated parts, and being firmly pegged in that position and the soil drawn around it, the operation is completed. In this way assurance is made doubly sure, as the cutting is enabled to derive support from the parent plant until it is able to draw from its own resources through the roots, which are soon emitted from the surface of the cut. As soon as these are sufficiently established, the young plants may be separated from the mother, and may be transplanted as may be required.

In winter, and especially in exposed localities where the seasons may be severe, some protection is desirable, though they are hardy enough to withstand the effects of any ordinary frost. This may be done in various ways, but if possible they are better to be lifted in September and potted singly or in pairs into small pots, especially if the shelter of a cold frame can be afforded them. Especially for new or more tender varieties this will be found advisable, and they are well worthy of the slight trouble incurred for their advantage.

The winter being safely over, it will next be necessary to make some preparation for turning them into their blooming quarters about the beginning of April. Or rather this preparation ought to be completed by that time, having been begun by selecting a suitable piece of ground in the previous autumn, and having it well manured and thrown up roughly, so that it may receive the full benefit of the action of the frost. Every precaution should be taken to ensure the absence of insects of every kind, and above all, patient search should be made for wireworms, for should any of these be left alive, they are sure to find the Carnations, and certain and

speedy death to the plant is the inevitable consequence.

A free friable loam is what the Carnation likes best, and it must be well charged with nutritive powers, good rich feeding being essential to the production of fine blooms. The nostrums, which were at one time considered indispensable, may be safely set aside as so much innocent quackery; if the loam be good, nothing else is necessary. The addition of a quantity of soot or quicklime, as a combative for the dreaded wireworm, has often been tried, and may in some degree act as a deterrent; but where the pests are present in numbers, nothing short of carefully picking them out has been found completely to master them.

As soon as the usual preliminaries of bed-making have been arranged, the plants may be turned out of their pots, and planted in rows 2 feet apart and  $1\frac{1}{2}$  foot between each plant in the row. As soon as the shoots begin to push, neat stakes must be provided of sufficient length to provide support as the flower stems push upward, until they attain their full development. In hot dry seasons liquid manure may be applied occasionally with advantage. In growing from seeds they should be sown in August or March, but the former month is best, as seeds sown then will produce plants to flower the following season, thus gaining a whole year over those sown in March. They may be sown in pans of light rich soil and raised in a cold frame, and the young plants being pricked off and transplanted into boxes as soon as they are fit to handle, they will be ready to plant out in the following spring.

The list of cultivated varieties is now wonderfully extended, and from them we select the following as good representatives of each class:—

#### CARNATIONS.

*Crimson Bizarres*.—Anthony Dennis, Black Diamond, Eccentric Jack, Lord Belper, Lord Milton, Queen Victoria.

*Scarlet Bizarres*.—Admiral Curzon, Brilliant, Duke of Wellington, Dreadnought, Lord Rawcliffe, Prince Albert.



*Purple Bizarres*.—Captivation, Masterpiece, Princess Royal, Sarah Payne, Shakspeare, Twyford Perfection.

*Rose Flakes*.—Alonzo, Duchess of Kent, James Merryweather, Marvellous, Princess Royal, William Greene.

*Purple Flakes*.—Ascendant, Beauty of Woodhouse, Colonel Wyndham, Florence Nightingale, Triumphant, True Blue.

*Scarlet Flakes*.—Aglaia, Comet, Coronation, Lady Rhodes, Meteor, Royal Scarlet.

## PICOTEES.

*Yellow Grounds*.—Chinaman, Empress of India, Loveliness, Prince of Orange, Prometheus, Queen Victoria.

*Rose Edged*.—Gem of Roses, Lady Allen Churchill, Maid of Clifton, Miss Meekin, Princess Royal, Rosalind.

*Red Edged*.—Ada Mary, Garibaldi, Isabella, Mrs Reynolds Hole, Mrs Norman, Prince of Wales.

*Purple Edged*.—Amy Robsart, Bridesmaid, Ganymede, Lord Nelson, Mrs Hobbs, Robin Hood.

## NEW AND RARE PLANTS.

## DIPLADENIA INSIGNIS.

THE illustration (fig. 1, p. 378), from the Veitchian catalogue, gives a very good idea of the outline of the beautiful *Dipladenia insignis*. It fails, however, to tell of the exquisite colouring of the monopetalous corolla. It is of the richest rosy carmine, and is so vastly bewitching as to rivet the eye upon it in admiration. The group we saw exhibited at Manchester was particularly pleasing, and when we add that the plant blooms in a small state, it needs nothing further to commend itself to all who grow stove plants. It is an English seedling raised by Mr Fenwick, Wallhead, Halifax.

## CYPRIPEDIUM DOMINIANUM.

We have in these pages several times complimented Mr Dominy upon his successful career as a hybridist. We have again to speak to his gains, and present by way of illustration (fig. 2, page 379) the new Lady's Slipper, which has been dedicated to him—*C. Dominianum*. The plant is of free growth, partaking in this wise of one of its parents, *C. caudatum*, while it has more of the floral appearance of its other parent *C. Pearcei*, or more properly *C. caricinum*. As the Messrs Veitch say, the seedling has nearly every organ intermediate between the two parents. There is certainly a singular fusion of parts, the long caudal-like appendages having the twist of

*caricinum* and the length of *caudatum*. It is a singularly welcome addition to our list of Orchids, and is so easily managed that no one need fear to take it in.

## DRACÆNA AMABILIS.

Although we have had plenty of *Dracænas*, still they are so valuable in their respective varieties for the general decoration of the stove conservatory, the greenhouse conservatory, the parlour, and the dining-room, that we welcome the many novelties that come before our eye. They are all first-rate; some of them, of course, better than others. Our present illustration (fig. 3, page 380) is one of the finest and most distinct that has ever been introduced. Grown in bottom heat and well aired in summer, it presents such a suffusion of pink and white with their various intermediaries as make it most telling among a miscellaneous lot of plants. The introducers, Messrs Veitch & Son, thus speak of it:—

“It is of robust habit, the leaves averaging 24 to 30 inches in length by 4 to 5 in width. It is, however, in its variegation that it proves so fine an addition to the splendid class of decorative plants. The ground colour of the leaf is bright glossy green, which, as the plant grows, becomes marked and suffused with pink and creamy white, the young leaves in large specimens being quite rosy. We exhibited this startling novelty at the recent In-



ternational Exhibition at Ghent, where, in competition with a variety of other novelties,

PLATYCERIUM ALCICORNE MAJUS.  
The Stag's Horn Fern (*Platycerium alci-*



Fig. 1.—*Dipladenia insignis*.—For description, see page 377.

it was awarded the first prize as being the best new foliage plant in the Show."

corne) is a meritorious plant because of its exceeding distinctness. It differs from most



other Ferns in its singularity of frond rising deed, to do best in intermediate heat, and from a kidney-shaped gland. Although here requires plentiful supplies of water to keep



Fig. 2.—*Cypripedium Dominionum*.—For description, see page 377.

shown in a pot, it is one of the best up the system. Our illustration (fig 4, page adapted for basket culture. It is found, in 331) differs from the normal type in having

longer and more subdivided fronds. The graceful way in which they fold over from a vertical to a horizontal position fits the plant well for display in an elevated position. With plenty of water at the root, and in the

a pinnated Palm, at the base, and rising up gradually towards the centre from a horizontal to a perpendicular position, forming the outline above all others which the lover of trees and plants most admire. The colouring

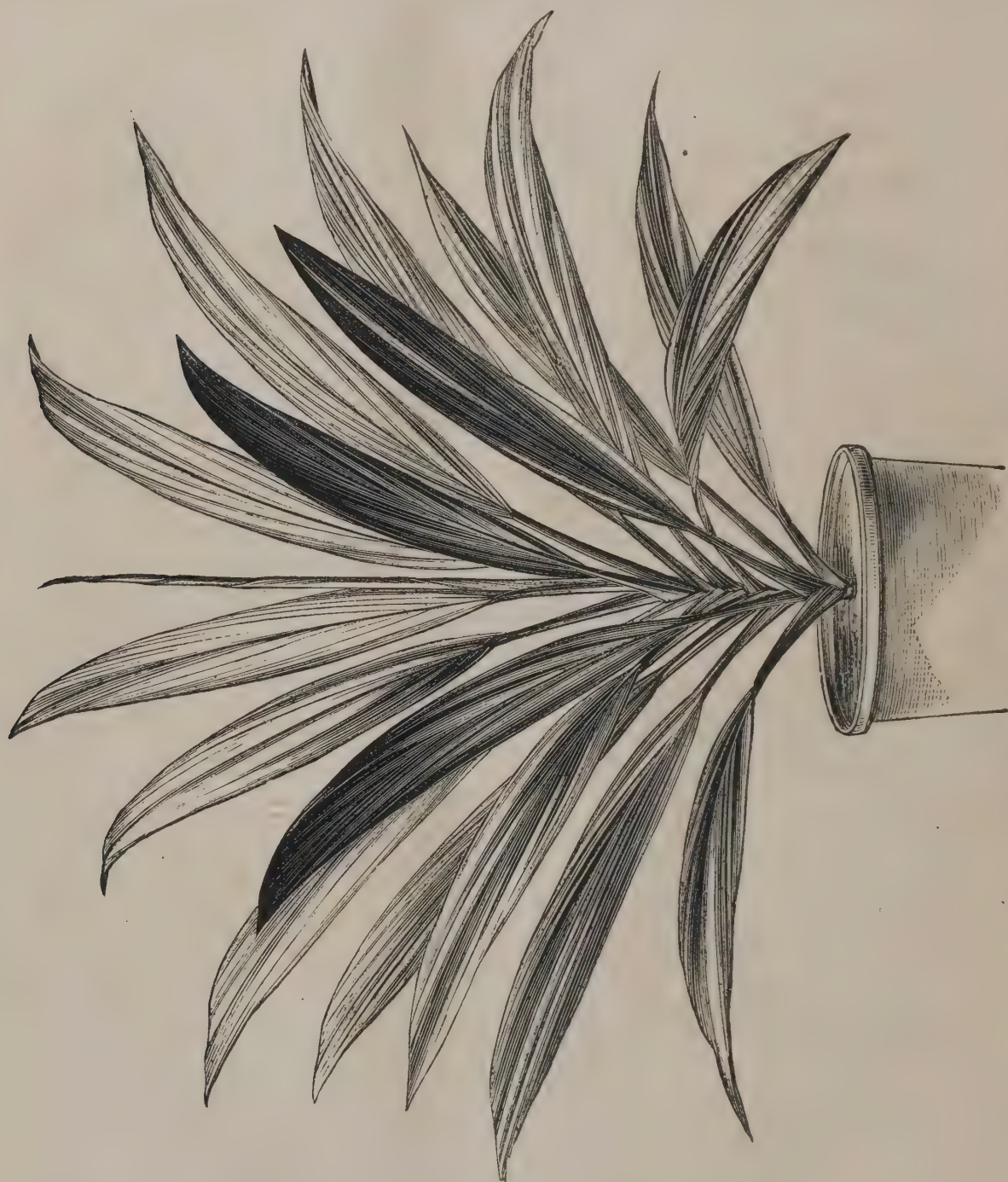


Fig 3.—*Dracæna amabilis*.—For Description, see page 377.

atmosphere, the Stag's Horn Fern will prosper well in a moderately heated house.

#### DRACÆNA IMPERIALIS.

This plant (fig. 5, page 382), is a stately grower, having leaves arching gracefully, like

of the leaves is very attractive, and with their stateliness, marks the variety as one of first-rate import. The Messrs Veitch thus speak of it :—"The leaves are erect in growth, from  $1\frac{1}{2}$  to 2 feet in length, and average 3 to 4 inches in width. The ground colour is dark green, which is much suffused with



bright red over the whole of the older leaves, tinctly, and the leaves are of a very robust and shading to light pink in the young and leathery texture. We believe this kind

Fig. 4.—*Platyceerium aleocone majus*.—For Description, see page 378.



foliage. The plant has a peculiar metallic gloss, bringing out the variegation very dis- will prove for decorative purposes one of the best which we have yet introduced."

## PROTECTING PLANTS IN WINTER.

THERE are a great number of plants slight protection during the coldest weather cultivated that require more or less This is particularly the case with trees and protection in winter. Many of those species shrubs on which the fruit and flower buds are



Fig. 5.—*Dracæna imperialis*—For Description, see page 380.

that are generally considered as perfectly formed the season before that in which they hardy are often greatly benefited by even a fully develop. And as the larger portion of



our hardy plants belong to this class, it is well to give them shelter whenever practicable. As the time will be soon at hand for removing plants to their winter quarters, and giving protection to those that require it in the open air, we give a few hints for the benefit of those who have no experience in these matters.

*Strawberries.*—There are few varieties of Strawberries in cultivation that will not be greatly benefited by giving a slight protection in winter. It is not necessary, nor would it be judicious, to cover the plants sufficiently to keep out the frost, because, if this were done, it would smother them. A light coat, say an inch deep, of straw or coarse hay is all that is required, for the object is merely to prevent frequent freezing and thawing during winter and spring. It is not the cold that causes the injury, but the sudden changes in temperature. In northern localities, where the snow remains upon the ground, other protection is not so necessary; but even then it will be the safest way to cover the plants.

We have never been able to obtain a full crop of Strawberries unless they were protected in winter; and there are very few of the most common sorts that will not yield

more than sufficient to pay all the expense of covering.

When the plants are cultivated in hills or rows, the material used for winter protection has only to be pushed aside from over the crowns of the plants in spring, and allowed to settle between the rows and form a mulch to keep the fruit clean and the ground moist in summer.

The plants should not be covered until the ground begins to freeze, or the weather is so cold that all danger from a late growth of the plants under covering is past. One good shower or a light fall of snow will generally settle the hay or straw, so that it will not be blown off.

*Dwarf Fruit Trees.*—Little can be done toward protecting these, except on a small scale. Where evergreen boughs can be obtained, they may be placed around and over small fruit trees, and afford them considerable shelter. If it were not for field-mice, coarse long straw might be used with advantage; but as it would not be safe to use this material, we advise those who desire to protect their trees to try branches from large evergreen trees, or, what would be far better, plant an evergreen hedge on the north side of the garden.—H. H.

## The Veterinarian.

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### *SORE THROAT IN HORSES.*

WITH the decline of temperature common at this season, more especially if it is alternated with chilly winds, or frost during the night and powerful sun during the day, or continuous wet and cold weather as we have experienced unfortunately of late, our domestic animals are prone to certain maladies which prevail somewhat extensively in districts. Among horses, sore-throat, or laryngitis, as it known in medical language, is most common.

With sore throat there is a cough, and at once known as the cough of sore throat by its frequency. The animal, if at work, stops suddenly, places the nose downwards, often between the knees, and there he will stand for some minutes while the convulsive efforts as if to dislodge something are very rapid, short, and violent. As soon as they subside, he resumes his walk as if nothing has happened, but it is not long before another attack comes on, and they become so frequent that neither pleasure nor profit comes of using him. Sometimes the same intensity characterizes an attack which prevails in the stable, and when such is the case, the animal is usually at the worst when he eats or drinks. If the top of the windpipe is pressed gently between the finger and thumb, the fit of coughing may be produced at once, and by this proceeding many practitioners decide after watching for certain other signs, but as a rule it may be dispensed with on the plan of avoiding unnecessary pain.

Besides the constant cough, there will be an increased redness of the membranes of the eyes and nostrils, and the mouth is hotter than natural, and if the animal have not lost

his appetite, it is likely he has refused his oats and taken in preference his hay. We have frequently noticed this in the beginning of sore throat, as well as catarrhs and influenza with which sore throat is associated, the solution of which appears to be that, the muscles of the swallowing apparatus (larynx) being affected, they cannot grasp and pass on small particles of food such as grain, which do not form with the saliva a solid bolus. Hay, on the contrary, after being masticated, is rolled up into a compact mass, and as such is carried to the back of the mouth, where it does not give way under the closing action of the muscles, whose office is to convey it to the gullet and thence to the stomach.

By aggravation of causes, sore throat does not always stop at the point we have described. Considerable swelling and pain takes place among the glands and muscles inwardly, behind the larynx and pharynx, and the large glands on each side outwardly participate. The animal goes off his feed and he stands with drooping head and ears, while saliva flows continuously from the mouth, and he looks wretched and miserable. The presence of fever is shewn by great redness of the membranes, the mouth is intensely hot, breathing is rather difficult, and as the case proceeds there is a roaring or stertorous noise produced. Sometimes the swelling increases so rapidly that suffocation is apparent, and, to relieve the sufferer, the practitioner at once opens the windpipe, which affords a delightfully easy respiration. In these cases also an abscess may form inwardly at the back of the throat; and we



have then analogous conditions to those in the human subject known as quinsy.

The treatment of sore throat in horses is very simple, and to effect a speedy and effectual cure in the exercise of humanity towards the creature, some great mistakes are made. Notwithstanding the great difficulty which is evident to all who see the suffering creature, some of the worst means of administering remedies are resorted to, such as cramming a bolus down the throat, or drawing up the head as high as possible, while a draught is poured down the mouth. In the latter case, the fluid being denied passage down the gullet may find its way into the windpipe: if it does so, it is a thousand to one if the animal is not choked. Seeing then these objections to such remedies, we recommend more simple and efficacious ones, such as the following:—If the animal is inclined to drink, and, as a rule, we find thirst present as a result of the fever, let him have water constantly beside him in which some nitre has been dissolved, 1 ounce of which may be put into a pail half filled. If he will take gruel or linseed tea, the nitre may be put in either, but on no account give more than 1 ounce the first day or  $\frac{1}{2}$  an ounce during the second. The throat may be rubbed on the outside, commencing at the root of one ear, descending to the angle of the jaws, beneath and up the other side to the root of the opposite ear, with ammonia, turpentine, or strong soap liniment. Mustard embrocation or liquid blister are sometimes used with benefit, but all require care, in order not to take off the hair.

In order to ease pain, the tincture of belladonna may be injected beneath the skin; chloral hydrate, and many other remedies may also be similarly employed; and to

facilitate swallowing and lessen swelling in the throat, the mouth may be washed out frequently with a gargle composed of 2 ounces of tincture of catechu and 1 ounce of powdered alum with about a pint of water. To use this it is simply necessary to elevate the animal's head so as to bring his mouth into a horizontal position, when a portion of the fluid, say a wineglassful, is poured from the bottle upon the tongue. The effect is to cause a movement of the jaws, by which the fluid is carried to all parts of the mouth, and thus comes into contact with those diseased. It is not necessary that this should be swallowed, therefore, after the jaws have been moved, the head may be lowered. It is, however, more effectual to make up a paste by heating the catechu in a small quantity of water, then adding 1 ounce of belladonna extract, 2 ounces of wheatflower, and as much treacle as is sufficient to make the whole a semi-plastic mass, and a tablespoonful of it should be put on the tongue five or six times a day.

When an abscess is forming at the back of the throat, it is sometimes useful to apply the nosebag and steam the nostrils. A copious discharge from the lining membrane is thus produced, and the parts affected are liberated, but if the breathing is in the least disturbed, this proceeding may be attended with danger. It should be arranged therefore to have the veterinary surgeon in attendance, in order, if required, to perform the operation of opening the windpipe. If this is done, the animal experiences little or no inconvenience afterwards; the maturation of the abscess proceeds, and discharge is effected without danger, but where due caution is not exercised, and the operation delayed, death frequently follows suddenly.

## FATAL CATTLE DISEASE IN NEBRASKA.

SENATOR Hitchcock has transmitted to the department of agriculture at Washington an account of a disease that has ravaged the stock of Dodge Co., Nebraska. The facts are as follow:—

The herd in which it first appeared consisted of about 150 two-year-old heifers and steers, chiefly Cherokee stock, with which an equal number of hogs were yarded. The enclosure in which the 300 animals are kept contains about 2 acres; is dry, sufficiently sheltered, and well supplied with fresh water, and with troughs for feeding. The feed was corn in the husk and all the hay they would eat. The disease, which is limited to heifers, or cows (both the barren and those with calf), first shews itself in a spot having "the appearance of dead flesh as from freezing," on the lowest external point of the vaginal orifice. From thence a species of ulceration gradually extends to the mouth of the womb, the lining of the vagina being covered with numerous small pimples. The eyes of the animal affected remain bright, her appetite good, and there are no other indications of disease apparent until she begins a violent switching of the tail. This is followed by nervous jerkings of the body, bellowings which are fierce and piteous by turns, biting the legs and hips, often so desperately as to tear out masses of flesh, wildness in the eyes, and special madness toward human-kind. In 36 or 48 hours from the time the spots first appear, and in 12 to 15 from the time the switching of the tail begins, death ensues.

*Post mortem* examination failed to discover any abnormal condition beyond the vagina, except that the small intestines and parts about "the small of the back" shewed some inflammation. The flesh of those that died was eaten by hogs and dogs with impunity. After trying almost every known prescription for cattle diseases without avail, syringing the vagina "with coal oil, or lard oil, which is better," was found to be a "sure cure if taken in time;" that is to say, all were saved to which this remedy was applied before the violent switching of the tail began, but none were saved to which it was not applied before the disease had reached that stage. In about six hours after the first injection of the oil the pimples in the vagina begin to disappear. Up to April 30, forty-four cases had terminated fatally. Whether all belonged to the herd in which the disease first appeared is not stated.

After such a lengthy enumeration of awkward-looking signs, the reader will doubt-

less have arrived at the conclusion that nothing short of acute poisoning can account for them. When animals, in apparent health one hour, are observed to become suddenly ill, the symptoms increasing rapidly in their intensity, with arrest of usual function, and at the end of a few hours terminate in agony and death, the judgment is not at all unreasonable, especially to non-professional minds. In years past, the absence of a scientific knowledge of the nature of disease among our itinerant cow-leeches favoured the utterance of such a verdict in thousands of cases, and utter inability to conduct a *post mortem* examination, as well as failure to interpret the various morbid pathological conditions exhibited by the dead carcase, have done much to prevent investigation, and also obstruct the means necessary for turning away the evil. It rarely happens that the bodies of animals, after dying from disease of any kind, are destitute of those certain signs by which some certain clue can be obtained of the malady which put an end to life. When we fail to make out properly by a *post mortem* examination, which succeeds to a clear and very careful detail of the signs exhibited during life, such failure, as a rule, is not due to the absence of morbid signs and other evidences, but to our obtuseness and want of observation. There are plenty of proofs, but we do not recognize them. In some of the milder diseases death takes place, without the previous existence of much suffering, it may be; the animal has fed tolerably well within a few hours of death, and, although she was not considered to be perfectly well, there was nothing to certify that she was downright ill, and after death it is marvellous that so little remains to account for it. Some time ago a farmer in the midland counties was detailing to his friends the various losses he had sustained, and among them gave several in-



stances of his cattle dying after being but very slightly unwell, "and what is most surprising," said he, "my farrier, who opened each one of them, said he could find nothing the matter with them." Such cases prove so many instances in which valuable information is lost, and if the same cannot be said of those which result from rapid and fatal disease, we can at least believe them to be quite as destitute of pointing to a remedy. To pounce upon "poison" as a cause of death may be very easy, but surely such should leave behind it specific traces, and if we cannot understand what they mean, and to what poison they refer, the fault is with us mainly, and not with the agent.

But there are many things besides direct poisons which give rise to a fatal termination of life. Few persons are inclined to believe that either we or animals can have too much of things that are good for us; yet they are constantly killing by absolute kindness. Corn and oil-cake are very good in their places as articles of diet, yet many have to learn their injurious effects in undue quantities, especially when indolence and inaction characterize the usual life of the creature. Since it has been the fashion to use artificial feeding stuffs, and dispense more liberal allowances of corn to our young and fattening cattle, our catalogue of maladies have somewhat increased.

Want of drainage has had its baneful consequences, and now we lament the results of an excess of it. We are entirely surrounded by causes, which, more or less profound, go on without observation, and it may be long ere we stay their progress towards extremes, and halt at the happy medium. Blood diseases among horned stock, and indeed among domestic animals generally, are now

recognized as forming a very large collection—important as they are numerous and profound. The description furnished by our American contemporary applies to a disease of this class—rapid, fatal, and mysterious. Animals in the best of health and improving condition are the victims. For some time the master's eye has delighted to linger over them, and he speculates with inward satisfaction upon their probable early return to his coffers with compound interest; but, not unlikely, when he next pays them a visit, it is to see their stiffened and worthless carcasses. There is yet much for the farmer to understand in connexion with food and its relation to the living organism. The feeding of animals is fast becoming a science, and ere long it will be considered necessary to accomplish it by the aid of rules regulated by the laws of physiology and arithmetic, as to balance the cash book at stated intervals. The cure of blood diseases, in consequence of their rapid tendency to dissolution, is but of a shadowy nature. Prevention can alone be secured by proper dieting and paying strict attention to the animals under all conditions, as well as studying the nature of food itself. To the latter is chiefly due the form of disease developed.

The very fatal disease named at the head of this article is a blood affection to which cattle of most countries are liable, the local characteristics of which are altered or modified by various causes as climate and possibly the food itself. Extravasation of blood appears beneath membranes or skin, and local gangrene results. Charbon or Anthrax is the term applied, and by the different forms of attack many varieties of the disease are met with.

## Dairy and Poultry Yard.

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### YOUNG STOCK IN AUTUMN AND WINTER.

THE time has arrived, says a correspondent of the *Country Gentleman*, when young stock is to be seen to. Winter will soon be here, and the long, cold rains and wet snows of autumn are impending. Are we going to keep out, as is so much the case, our tegs, calves, and young colts, till the snow forces them to shelter? Quite likely the most of us. And what will be the result? It will not only be a lessening of the flesh, but a check in the growth, which can never be remedied. On this point we are very heedless—many of us ignorant. We act as though we did not know that what is lost in the growth of a young animal is a loss to the mature cow, horse, or sheep, or any other stock. And if left out now in the rains and snows with short feed, frozen and faded toward the last, this will surely, and to a considerable extent, be the case. The fields also are hurt by being denuded, and the evil thus has a twofold hold upon the future.

It should be remembered—but is not generally—that young stock dropped in the spring has never seen winter, so that the severity of the weather will fall all the heavier upon the tender and uninured animals. They need early shelter, to be let out again if the weather is favourable and the feed plenty.

A shed will answer for the calves and the young sheep, each kept separate. Let there be feeding racks along the sides—this for fall; and I also prefer it for winter; but let it be made tight and warm, with warm, dry bedding, not neglecting to ventilate sufficiently, though no snows should be suffered to blow in. Thus housed, and not crowded, the little company will enjoy it, and continue to thrive uninterruptedly if the right feed be

given. The same will do pretty much for the three, the tegs, the calves, and the colts, and that is, in effect, a continuation of the grass or summer feed, dried grass or hay, dried when green and tender. Nothing is better than aftermath for this young stock, unless it be early-cut clover. The two together we have found to work as well as anything. The substance and effect are about the same.

It is held that such a feed is too loosening to the bowels. We have not found it so; and I have never seen it so. Is it more so than grass itself, grass advanced in its growth, which has a less influence in this direction than the more tender growth, such as pasture generally furnishes? No one would object to have pasture continued during the winter if it could be, as is the case in some parts of the country, where cattle and sheep subsist on grass the year round. But some people are hard to convince; they are those that come in last to adopt the improvements; and thus they lose the benefit which others have reaped in the meantime.

It is gratifying to see the advance young stock will make during the winter if properly fed and taken care of. They will come out strong, active, and greatly grown. Such heifers will be cows at two years, and make the better cows for it; otherwise they would be apt to lose a year, which would be a year's loss of feed and care, and the animals not the better. The tegs will have grown into sheep, wool long, glossy, and thick; and the colt, hearty and nimble, will have made rapid advance, which it could never have reached with bad treatment and neglect; the loss would have been seen in the future horse, and in so valued an animal would have been



considerable, and therefore cannot be afforded, especially if the animal be a choice one.

A word as to feeding. We find it best for young stock to feed often and a little at a time. They will then eat up clean, thus pre-

venting waste and the habit of loathing their food, which last is apt to be the case where the remains of a large feed are much breathed over. The cost to winter young stock is thus reduced to a comparatively low figure.

### THE WATERING OF MILCH COWS.

THE importance of providing good, clean water for milch cows to drink, has been very clearly shewn from repeated examinations of specimens of bad milk under the microscope. Of late there has been a great deal of discussion upon the purity of milk, and the question, therefore, of the watering of cows is a very interesting one. Some two years ago an account of a somewhat noted cheese which had come under the observation of Professor Sawes, appeared in the *Rural New Yorker*. The milk from a certain milkman, soon after received, was found to be defective. Under the microscope, vegetable organisms were found growing in it. A drop of this bad milk, when added to milk perfectly sound, introduced the same class of organisms, which increased and multiplied with great rapidity in the sound milk, causing it soon to be bad. On examining the blood of the cows under the microscope, the same class of organisms were found, and their source was traced to the water from which the cows obtained their supply for quenching thirst.

For a long time it has been observed that the milk of cows, drinking from stagnant pools and mud holes, soon becomes bad, and is the fruitful source of floating curds during hot weather. In St Lawrence Co. a noted dairyman stated to us that during a certain dry season he was unable to make good butter from the milk of his cows, yet his neighbours had no difficulty. His pastures were not well provided with water, and the

cows were forced to drink from sloughs and frog ponds. He tried, for a long time, to discover the cause of the trouble in his butter, and at last suspected it came from the water the cows were drinking. Then he sank a well and obtained an abundant supply of good, clean water for his herd, and he had no difficulty in making sweet butter, and as good as could be produced by his neighbours.

There is abundant evidence to shew that certain living organisms found in unwholesome water, when taken into the system, retain their vitality, enter the blood, and are carried into the milk. Doubtless, in many instances, disease and blood-poisoning results from the use of bad milk; the cause of which, if properly traced, would be found in the unwholesome water which the cows drink. Nearly a year ago the *Canada Lancet* gave an account of a serious case of poisoning produced from using freshly-churned buttermilk. A medical man was summoned to a house where he found four men apparently suffering from the effects of a narcotic-irritant poison. The symptoms were vomiting, purging, burning pains in the bowels, cramps and contractions of the lower extremities, stupor, constant thirst, small pulse, and clammy surface. On inquiry, it was found that each patient had some time previously (from an hour to an hour and a half) drank a tumblerful or more of freshly-churned buttermilk, and were shortly afterward seized with giddiness. Seven other persons, relatives of the

family, had drank of the same buttermilk and were seized with similar symptoms although not quite so severe. The milk was palatable to the taste, and all asserted that it was impossible that any poison could have been put into it. Carbolic acid in ten-drop doses was administered, subsequently followed by opium, under which treatment all recovered. The milk was then tested. No trace of vegetable or mineral poison was found; but on examining it microscopically, numerous animalculæ were perceived, of about 1-5000th to 1-7000th of an inch in diameter. A sample of the injurious milk and a like quantity of good milk freshly churned (in which, however, it is stated a few animalculæ were visible on examination) were then set aside for a week, when the latter divided into curds and whey, but the former retained its consistency, and looked as fresh as when churned and was literally swarming with animalculæ, while the latter was nearly free from them. The theory advanced by the medical attendant who contributes the article, regarding the animalculæ, was that the germs which produced them had existed in the water supplied to the cow from which the milk was obtained.

This theory was, without doubt, correct, and it is not improbable that the cases of

poison from eating cheese, which not unfrequently occur, may be laid to the same source. Dairymen are not generally aware of the serious consequences that are liable to result from neglect in supplying their herds with good, clean water. The impression seems to prevail that the cow has wonderful powers of separating all the poisons in her food and water in some mysterious way, so that they shall not be secreted in her milk. Filthy water, alive with organisms, which no one would think it safe to drink, is not unfrequently considered good enough for the dumb beast that supplies the family with milk. The milk is used without question as to its wholesomeness, and if typhoid fever, or some malignant disease attacks and carries off some of the inmates of a household, the cause is laid to an inscrutable source, some epidemic, or contagion which is wafted by the winds from afar. There are poisons other than those found in the minerals and drugs of the apothecary. They are in the cesspool, the drain, and in the heaps of accumulated filth often permitted to diffuse their noxious influence about our living apartments; and then there are those other poisons coming from the milk and the flesh of animals which have been improperly fed and carelessly looked after.



*AUTUMN BUTTER-MAKING.*

AT this season of the year the business of the dairy, in many farm-houses, is very perplexing. It is not an easy task to keep butteries sweet in warm days, and therefore the product of the dairies is not always the most satisfactory to the buyers and consumers of butter. Milk and cream will absorb all the bad air and odours that abound, therefore the first principle in butter-making is to have the milk-room in a current of air, and in the coolest location which the house affords. And even when the situation is all that can be desired, unless the dairymaid skims the milk at exactly the right time, and keeps the pans and milk pail as sweet as roses, she will fail to produce "gilt-edged" butter. If the milk stands in the pans until small spots appear on the surface of the cream, good butter cannot be made; and several years' experience has taught us that cream taken from milk just before it turns to clabber, makes the sweetest and most deliciously flavoured butter.

We all read many directions for making good butter, and they are often written by those who never made one pound of it, but hold the pen of a ready writer on any subject which comes handy. I have no faith in their teaching any one to make butter, says a "Housekeeper," in the *Country Gentleman*, but practical hints, learned from a continual practice for years, I always like to listen to. But this writer will tell you to skim off the cream in just thirty-six hours from stirring the milk, while the other says, "let the milk stand forty hours before the cream is removed." Now I tell you to skim the cream whenever the milk has turned acid, whether it takes twenty-four, thirty-six, or forty-eight hours to make it so.

Take a large table-spoon and dip the end of the handle into the side of a pan, taking off a tiny mite of cream and milk; if it be

slightly acid. Skim it off. It may seem to you that your cream jar does not fill up as rapidly as when you took the cream from sour milk, but an actual weight of the butter will prove to you that there is a small gain rather than a loss. To be sure you will have less buttermilk, but that is no serious loss.

In skimming the milk into the jar or cream can, be very particular not to let drops of cream fall upon the sides of it; but take up the skimmer full, shake out the milk, and let the cream fall into the centre of the jar; and when cleaning off the skimmer, detach the cream from the forefinger on the edge of the skimmer, rather than the edge of the jar. This will prevent little streams of cream from running down its sides.

At the first skimming into a large stone jar (always use stone in preference to tin), add to it one heaping table-spoonful of fine salt, and after each skimming, stir up the whole contents with a silver spoon. A much better quality of butter is made from cream which has been kept in the jar not more than three days; and when one possesses a large enough dairy to churn the cream every morning, the butter is always preferable. Cream that is kept too long can never make a respectable quality of butter, for it possesses a flavour which no one accustomed to a good article can endure.

Great cleanliness, and an exercise of common sense, are indispensable in the manufacture of butter. The direct rays of the sun should be shut out of the milk-room, and a strong current of air should never pass directly over the cream, as it turns it into a tough, skinny substance, which cannot make a good article. Some dairywomen adopt the practice of adding a small quantity of sour milk or buttermilk to each pan of freshly strained milk; but it is not a practice I should recommend. Let the milk sour

naturally, and remove the cream at the right point of its acidity.

Opinions differ as to washing butter. If made in large quantities, it doubtless hastens the working out of the buttermilk, but to my mind it detracts from its sweetness. To be sure, sugar can be added, and those who are most celebrated for the quality of their butter always put in it the same quantity of fine white sugar as of salt—1 ounce of fine salt and 1 ounce of sugar to every pound of butter.

The practice of salting butter and letting it stand for twelve hours or more, and then working it over and packing it down, is damaging to the quality of the butter. Work the butter thoroughly once, and then either

pack it down directly, or make it into rolls or cakes. The second working of butter breaks the grain and renders it "salvy." Remember the old proverb, "What is once well done is better than twice ill done."

Butter of the same quality cannot be made from various breeds of cows, fed upon different grasses or fodder, and that made from Alderney cows will always have a more brilliant colour and a firmer texture, and command the best markets. And different grades of butter will always be found as long as the quality of milk differs so greatly; but three things must always be employed in its manufacture—pure air, cleanliness, and brains—if one would command the highest prices for their dairy produce.

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### DELAYED INCUBATION.

THE following interesting account of an incubation, which was greatly interrupted, but nevertheless successful, appeared in the *New York Poultry Bulletin* :—

On Saturday, 19th April 1873, I sat a hen at 6 P.M.; the eggs were, therefore due to hatch on Saturday, May 10, at 6 P.M., according to ordinary received impression of the period of incubation, which I hold to be more or less inaccurate. On Saturday, 26th April, at 8 P.M., in the dark, she left her nest (having sat just a full week), and could not be found. No hen was procurable that night, and the next day being Sunday nothing was done; but on Monday, 28th April, at 8 P.M., another hen was borrowed which took to the eggs readily. Having to borrow a hen, the charge of them was not confided to her until darkness had set in. Here then was a loss of forty-eight hours! The second hen sat steadily until Wednesday, 7th May, when, being attacked with diarrhoea, her illness caused her to forsake her nest at 6 A.M. At this time no further endeavour was made to

save the eggs, and they remained in the nest until Friday, 9th May, at 3 P.M. (a lapse of fifty-seven hours), when, having two hens come off, I doubled up the broods, and gave the rejected batch of ten eggs—having discarded three that were addled—to one of the two hens, to see what sort of business she could make of the trial. Bear in mind that the sum of the time during which the eggs were uncovered, uncared for, and untreated to any application of heat, was 105 hours. Now let one take from that twenty hours, as the time in which, I think, chicks suffer no loss in growth, and I obtain eighty-five hours as the period to be made up by extra incubation, and that this estimate was not incorrect, the result shews; as on Tuesday, 13th May, at 6 A.M., eighty-four hours after due, all the eggs (with one exception) hatched out strong and healthy chickens. Here was an arrest of incubation of eighty-four hours; although the eggs had been unprotected during 105 hours. This may appear incredible, but to prove the calculation, and to render it more extra-



ordinary still, let me allude to the fact, that 21 days or 504 hours are usually allowed for incubation, whilst in the case now instanced the eggs were only under the hen 460 hours, leaving 44 hours to be accounted for between 504 hours, the stereotyped quantum for incubation, and 460 hours in which these neglected eggs were delivered of full-grown chicks. I think this proves both of my ideas (1st), that a chick will grow for 20 hours or so after being deserted in the shell, and (2d), that the natural and sufficient period for incubation is 20 days. For, add 20 hours of growth to 460 hours (the time when the eggs were actually under the hens), and there are 480 hours in all. Now take 24 hours from 504 (being 20 days instead of 21) and there is the proof—480 hours. If I am asked why this should be, that eggs can pass through so many shocks and chills, I can only say I know not any reason for it. But this I know, that out of 13 eggs I received 10 lively chicks, which it took three hens to hatch, and that the three only sat altogether 460 hours, or

20 hours less than 20 days. If it proves anything at all, it is that close sitting kills; that a chick will grow 20 hours after it is left alone, and that 20 days is sufficient to hatch chickens if the mother hen is not too ardent an incubator. Upon general principles, then, I would recommend that every chance should be given before a clutch of valuable eggs be abandoned. If by the feel it is ascertained that there are chicks within, wait until the discoloration of the shell announces the fact of decomposition having begun.

I may add that the egg I said was not hatched, had within it a live chick, in whose behalf I performed a Cesarean operation, by taking it out of the shell. At first it shewed great weakness, but soon came round under the influence of a spirit lamp and cotton batting, and it, with all the others of the belated brood, are as thriving and active as any in my possession, and I am apt to fancy that they are more vigorous, which may be only partiality. Up to the present time not one has died.

## The Apiarian.

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### BEE NOTES—ADVICE TO BEGINNERS.

IT is said, and the assertion is pretty well sustained, that a queen bee, when everything is favourable, will deposit, on an average, 3000 eggs every twenty-four hours. A good swarm of bees consists of some 20,000. If the eggs that a queen will lay were all cared for until hatched into bees, we can easily see that every ten days will, at this rate, furnish a large swarm. We can also see that every day a properly situated colony is without a fertile queen, there must be a great lack in the increase. As many proportionally die in such a stock as in one that is maturing bees, enough bees to make several swarms die off annually from any thrifty stock. The age of a worker bee is but a few weeks.

A piece of comb an inch square will contain about fifty cells—worker size. A hive of only ordinary size will contain from 60,000 to 80,000 cells. We can all readily see the advantage of having an abundance of comb in suitable condition to receive the eggs that a queen will deposit, and, above all, that there should constantly be a queen depositing eggs. In the natural process of swarming, colonies are without a laying queen for fourteen to eighteen days. In ordinary artificial swarming, about twenty days. A colony that designs throwing off a swarm—to make the time short as possible—will begin preparations several days beforehand to provide a successor to the queen that is to leave, and to make a sure thing of it, usually several young queens are reared. When the first cell containing a queen is sealed over, the old queen and most of the bees leave as a swarm. In making an artificial swarm, the old queen is taken with the

bees, and the old stock is left destitute the same as in the other case. They do not usually have any queen cells started, they have to begin from the eggs or any young larvæ, and it will take them some days longer to mature a queen. When bees, if only a hundred or two, are deprived of their queen, and have eggs or young larvæ, they will at once commence preparation for one, and it will take them from 10 to 16 days to mature it. In eight days after leaving the cell, when all is favourable, she will begin to lay. But there has been a loss of two or three weeks in egg laying. Every bee-keeper, who is disposed to turn the industry of his bees to the best account, should begin to rear queens early, that they may be ready by the time he has swarms, either natural or artificial, thereby gaining many bees.

I have found it most economical, says Mr Quinby in the *American Agriculturist*, to rear queens in small boxes. Those made on the Langstroth or common movable comb principle will answer as well as any. I use three combs about 5 inches square, suspended in frames that will go in a box easily. No top or bottom nailed fast. Near the centre of the middle comb cut out a piece near 3 inches long on the upper side, 2 inches on the bottom, and a little more than an inch in depth. Now take a comb from a hive that is breeding containing eggs or larvæ just hatched from the egg—new comb is best—cut out a piece of the same shape half the depth of the space cut out of the comb, and just long enough to fit in the upper side closely. The bees will wax it fast in a few hours. Near a pint of bees is wanted to rear the queens. If they cannot be had from any



at a mile or two away, they may be taken from a hive at home by taking young bees. Young bees are best. Obtain them by taking two or three combs without the queen in the middle of the day from a hive from which an abundant brood is hatching—you have movable combs of course—and put them into an empty hive or box a few feet from the old one. In an hour or two the older bees will return to the hive. The bees that remain may be brushed into an empty box and shut up. Now set the box prepared for rearing queens over it, and let the bees creep through the hole, left for the purpose up into it. Finding the brood, they at once commence enlarging one or more of the worker cells into such as are required for raising a queen. If very warm, give a little water in a sponge. They may be allowed to fly out in forty-eight hours.

If there is no honey in the combs, they should be fed a little while shut up, as well afterwards, unless they can obtain it from flowers. On the tenth day, if they finish more than one cell, the supernumeraries may be cut out carefully, if situated so that they can be without mutilation, and given to another little box of bees prepared in the same way, except that the cell is put in instead of brood. If more than one cell be left, the first queen that hatches makes it her business within a few hours to destroy all rivals; she bites a hole in the side of the cell, and thrusts her sting into the most vulnerable part of her calmly reposing sister, which in a few minutes proves fatal. The queen, when rid of all rivals, will fly out to meet the

drone in about six days; if successful, will begin to lay in about two days more. The eggs may be seen in the bottom of the cell. She is now ready to introduce into the full colony that is queenless; but can remain in the little box several days, if none are ready to receive her. The old hive having swarmed, the new colony should be put on the stand of the old one, that being moved a rod or more to a new stand. All the old bees return to their old place in a day or two. Open the old hive and cut out all the queen-cells. Take the mature laying queen from the little box, and if you want to be absolutely certain that she will never lead off a swarm to the woods, cut off one wing to prevent her flying ever afterwards. With some honey in a spoon smear her completely. Turn her over a few times with a feather, or something that will not harm her, and then drop her among the bees at the top of the hive, who will clean her off the first thing, and accept her as mother. Professor Agassiz is reported to have said in a lecture given at Cambridge recently, that the young queen matures and endeavours to force her way out of the cell, and is kept back by the bees, before the first swarm with the old queen leaves. Those who have full confidence in his statement will doubt the propriety of introducing a queen to the old hive as I have directed. But I will assert without fear of contradiction from any one fully acquainted with the subject, that not one first swarm in fifty, or even five hundred, will issue under such circumstances. Erroneous teaching leads to erroneous practice.

*THE COMING HIVE.*

IT is not infrequent that we receive inquiries for "the best hive." Having these inquiries in mind, we were interested in the following from a correspondent of the *American Bee Journal*.

Every hive, patented or not patented, receives from the owner thereof his unqualified assertion, enforced by vigorous language, that it is the very best hive in existence, and his theory of management perfection itself. Any person having the temerity to contradict these assertions, engenders irritation which through the mighty pen surpasses in virulence the venom of the most aggravated bee sting.

Now from the many theories so positively advanced, perhaps the coming hive can be roughly outlined by the help of the shadow it casts before it.

1. We must have a large hive to be worked as a swarmer or a non-swarmer, and arranged for obtaining the greatest yield of honey, either box or extracted, or both, as the apiarian desires.

2. The frames will be worked one story, —long, shallow frames in a long hive with entrances either parallel or horizontal to the combs, as desired for different portions of the honey season. The frames must admit of easy removal, either singly or in a body, and also admit of the use of the division board.

3. Our bees in northern latitudes must be wintered in a special frost-proof house, because it is more economical and safe. The

coming hive is too large and cumbersome, occupies more room in the bee-house than is necessary. The hive, therefore, must be upon the summer stand, while the frames must be so constructed that the portion containing the brood nest can be easily removed and placed safely in the bee-house.

4. Shall we winter our bees on sugar syrup? If so, in order to save time and labour, we must have a special feeder for each hive. It need not necessarily be a "tea-kettle" or a patent feeder, but simply a tin milk pan set either over or under the brood nest.

Now, to obtain such a hive is at present impossible, though every patent hive maker will tell you he has it, while but very few have anything that approaches it. A close-fitting frame hive accomplishes the thing nearer than any other style. But in saying this, we arouse the ire of our loose frame friends. Now, cannot a compromise be made between the two factions of our brotherhood, and a plan adopted that will enable us to work both loose and close fitting frames in the same hive? We could then secure all the advantages of both.

Now, I have no axes to grind in the matter, but as a candid looker-on, give me your views of what I would like in a hive. But I were to work my apiary for box honey, give me the close-fitting frame; for extracted, the loose frame.



## The Country Gentlewoman.

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### *AUTUMN LEAVES AND FERNS.*

**D**URING these autumn months, the windows of a little room we know of have been made lovely by sprays of Fern, Maple, Spiraea, and Oak, standing in jars of water upon the window-sill, and encircling a little hanging basket filled with Ivy and clusters of scarlet berries. Remaining fresh and bright for weeks, their sunny, translucent colours, as the light shone through, seemed to derive richness from the shade within, while their entwining forms gathered new beauty from the swaying boughs without. But now some of the bright leaves are beginning to dry and curl. The Virginia Creeper, that reaches up so beautifully to the Ivy, is growing brown. Soon they must be thrown away. What then? The little room need not be bare. Goodly stores of Ferns and richly tinted leaves, trophies of many an autumn walk, are safely laid away in old magazines, and between newspapers, ready to be

wreathed and grouped upon its winter walls. Fortunately they are not all single leaves. There are some exquisite sprigs among them; and these are pressed so carefully that they will look almost like freshly gathered ones when once they are tastefully disposed among the Grasses.

While out-door leaves, sere and brown, crackle under foot, it is delightful to settle a bright bit of October in our home for all winter. Wreathed on the wall, grouped in vases, or tastefully arranged in some quaint fashion, these autumn leaves radiate cheerfulness and the brightness of heart that is born of harmonious colour. Happy the gleaner who has saved an abundance of Maple leaves, with their brilliant crimson shaded off to the lightest tint, or their vivid scarlet mottled with lavender or silvery gray; and the crimson and brown Dogwood, with its tender tints of pinkish purple and ashes of rose.

## WICKER SCREENS.

WICKER SCREENS for windows, fire-places, and unsightly corners that one may be desirous of concealing, are now the order of the day, and by the accom-

signs, as the engravings will shew. "The Kensington" can either be had plain or i



Fig. 1.—The Kensington Window Screen.

panying illustrations, from Dick Radclyffe & Co., of High Holborn, London, our readers interested in parlour and drawing-room de-

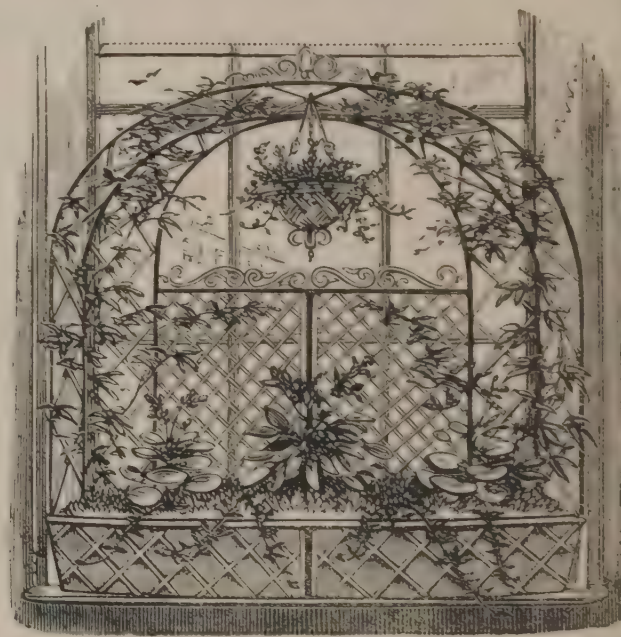


Fig. 3.—The Belgravia Window Screen.

white and gold, and can be elaborated with pot plants or climbers, if necessary. "The



Fig. 2.—The May Fair Fire-place Screen.

coration can see what sort of thing will serve to make a home more beautiful than it was wont to be. They are of various de-



Fig. 4.—Design for Window Blind.

May Fair" converts a thing of usefulness in winter to a thing of beauty in spring and summer. "The Belgravia" is the most



elaborate of the three, and where people will go to the expense and trouble, it will give many a pleasing start to the caller. There is no end to the new things of utility that can, in adept hands, be converted into things of beauty. Of course winter's cold will make the lady of the house transfer her leaf and

floral embroidery to more suitable quarters. The window will take the place of the grate, and the plants in dull dark weather will be grateful for the change. "The Window Blind" points out how climbers might be trained; only, however, is this permissible in houses well lighted.

### WINDOW GARDENING.

**I** OBSERVE that most writers on Floriculture begin by informing their readers that no person need attempt a window garden (except it be Ivy and Ferns) unless they can have sunshine upon their plants some portion of the day; and likewise that the fumes from coal or gas are death to plants.

An ounce of experience is worth a pound of opinions; and with your permission I "rise to explain" my plan.

When I admit the difficulties of window-gardening under all the above drawbacks, still I insist that a perfect bower of sweets can be made of a north window in a room heated by coal and lighted by gas; and that, too, with very little extra expense or trouble.

Take, for instance, an old card-table, remove the top, line the inside with zinc and have a faucet inserted underneath, have the good man of the house saw a thin board so that it will nicely cover the table; in this board bore holes thickly with a small gimlet, adding an auger hole in the centre sufficiently large to admit the nozzle of a small funnel; place a thick covering of Moss over the board, turn a kettleful of very warm water through the funnel into the zinc reservoir, and place your pots with the plants upon the moss.

By drawing off the water when it becomes cold, and replacing it with hot water every night and morning throughout the winter, your plants will thrive splendidly, and

even without a gleam of sunshine you can have many flowers during the months of snow and storm. The slow rising of the steam through the Moss underneath the pots keeps the air around the plants humid, while the bottom heat thus obtained gives rapid growth. I would like to send you a picture of my window, but can only do this by "word painting."

Instead of a table, I procured from Dick Radclyffe & Co. (whose advertisement I saw on your cover) a "window-garden," had it lined with zinc, and in this placed pots of double Geraniums, Feverfew, Abutilon, Begonia, Aucuba japonica, White Bouvardia, and various other plants, with several varieties of hardy bulbs. At each side of the window brackets are fastened, and pots of Fern with their beautiful wavy plumes are placed therein. Above these, out of reach of the Ferns, are carved walnut brackets, one supporting a white and the other a pink Primrose; while still other side-brackets hold pots of variegated Ivy and Wax-plant. From the centre, depending from a strong hook, hangs a very large rustic basket. During the whole of last winter this basket was a mass of bright colours. A large-leaved Fern occupied the centre, but was entirely surrounded by Hyacinths, Tulips, Crocus, and Narcissus of every possible shade. After the flowering bulbs had faded they were removed, and a Begonia Rex, variegated Alyssum, variegated Balm, Ivy-leaved Geranium, Passiflora tri-

fasciata, and *Cobea scandens*, took the place of the bulbs, and so the basket remains a thing of beauty still.

On each side of the window below the side-brackets hang small Moss baskets, one containing variegated Ivy, the other a Strawberry Geranium; but the prettiest basket of all was made of wire filled with Moss and Crocus bulbs. Through this Moss the purple and white blossoms looked forth like veiled brides, winning the admiration of all beholders.

For my Ivy I have made a hanging-basket, trimmed with old-fashioned leather-work and lined with zinc to prevent dripping. In this I set the earthen pot containing the plant, and thus obtain a handsome receptacle for my Ivy, without endangering its life by planting it in a vessel with no drainage. It now looks healthy and beautiful.

A lady friend informed me that glue-water was an excellent stimulant. I experimented with it upon my skeleton regiment—for I had such a regiment—I packed my double Geraniums and several other plants for moving, and for two weeks they were tossed about on the railways and in the booking offices without light or air, and when released they came forth like withered sticks without

leaf or branch, though still alive. I treated them to small doses of glue-water and an occasional taste of liquid ammonia, and though they had not looked upon the sun for some months, they soon became green and thrifty plants.

There is no trouble with the green-fly or red-spider in my window; the steam from the hot water is not relished by Mr Spider, and I have learned, by several years' experience, that it is an excellent thing to utilize Paterfamilias's tobacco smoke to keep off the aphids. The cigar stumps are also excellent. I put them in the watering-pot, turn on cold water, set it on the hob until it is blood-warm, then thoroughly wet the earth around the plants with this tobacco-tea—the worms don't like it, but the plants do.

In a former number of *THE COUNTRY GENTLEMAN* a writer said, "Do not kill your plants with kindness by giving too much water, as most ladies do." To those who wish to succeed with window plants this advice is invaluable.

I see I am making this article too long, though the half has not been told, as you would admit if you could see "My Window Garden," in spite of the influence of gas and want of sunshine.—*M. M. B.*



# THE COUNTRY GENTLEMAN'S MAGAZINE

A BOOK FOR THE COUNTRY HOUSE

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DECEMBER

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*MR BRIGHT ON LAND AND GAME.*

A GREAT orator, and a reluctant minister of the Crown, after a long time of silence, has found speech. Mr Bright has once more been able to present himself before an almost idolizing constituency. His wonted eloquence has not deserted him. He speaks with all the terseness and the fire that served him so well in the days when he pleaded, or demanded the abolition of the corn duties, which Sir Robert Peel hesitatingly decreed through Parliament to repeal.

We have nothing to do with politics here, except in so far as they relate to agricultural questions. We are pleased to know that Liberal and Conservative alike take an interest in the agricultural problems that affect farmers, and that within the last two or three years the attention of both has been more distinctively turned to their satisfactory solution. How far "place and power" entered into their calculations, it behoves us not to enquire. Our observation is, that few meetings of a political character have taken place without something having been said about the land, and the questions which bear upon its successful or unsuccessful cultivation. And better than all, it seems, judging from "the echoes from the country," that legislation in the interest of tenant-farmers must be attempted next session. It cannot

be put off this year the same as it was last, unless, indeed, the throes of dissolution of Parliament which cannot be overcome, and the hope of a Liberal or Conservative resurrection so conflict, that the land question cannot turn up effectually until the new Parliament.

Mr Bright was somewhat reticent upon the land question. His speech altogether was condensed. About the Irish Land Act he held an opinion which differs somewhat from the people who are affected by the alteration. But although that legislation has not altogether secured freedom from agrarian crime, it has undoubtedly tended to its diminution. The member for Birmingham, marvellously straightforward as he is, is not without a touch of sophistry. He says with reference to matters in Ireland, "So far as I can understand, there is no diminution of rent, no insecurity in its payment, no class in that country can be shewn to have suffered by the government measure, which was passed in 1870." Exactly so; but the complaint before by the landlords was, that they could not obtain their rents, that when they tried to exact them, they were threatened with bludgeons and blunderbusses. It was not so much an increase of rent that was wanted, as a payment of that which was due

from small occupiers—a safety for those who were appointed to collect rents, and an improvement of the land. The Act has not done much for the tenants with capital.

On the question of increasing the wages in the agricultural districts, Mr Bright spoke like a political economist of the type of his “dear friend, Mr Cobden.” He said, “bear in mind that it is not in the power of organization, especially of a scattered class, as they (the agricultural labourers) are, permanently and gradually to raise the rate of wages:—

What the agricultural class in this country require, is, that the land should be made absolutely free, that there should be steps by which the best, cleverest, the most industrious, the most frugal of the agricultural labourers could gradually make their way to a better and higher position. That can never be with land laws such as we now have, land laws which tend everywhere to keep great estates and great farms altogether beyond the reach, or the expectation, or the dream of the agricultural labourer.

We differ from Mr Bright altogether on the question of large and small farms. We have as little notion of a smashing up of estates and of small farms doing good, as we have that a handloom at home could turn out as cheap calico as a power-loom in a factory. This is a thoroughly weak point in Mr Bright's armour. He is pre-eminently the people's man, and if there were no such large places as he and his confreres have, how could the people obtain their under-clothing at anything like a reasonable rate? Corn and roots to pay must be grown upon the same principle, and because that is not carried out in land, the results are unfavourable for Mr Bright's friends. The agricultural labourer has as much, nay, more incentive to struggle, and a better chance of attaining,

through perseverance, his end, than ever had any of the wan ones in the cotton districts. Never were the agricultural labourers reduced to such hard straits as the Preston operatives. Fancy the vast mass of these—and Mr Bright's speech would seem to imply as much—ever rising to be master cotton-spinners. The thought never enters into their head. Why should the agricultural labourers be considered degraded because they do not attain the same *status* as the masters?

We have written so often about the Game-laws, proved so often that their abolition amounted to really nothing, as, with reference to game, all was a mere matter of arrangement between landlord and tenant, that we do not care, because we do not deem it necessary, to say anything more upon the subject now, beyond a single commentary upon Mr Bright's declaration that it was “monstrous that tenant-farmers should occupy land, pay great rent for it, and that they should not possess absolute property in all that lives upon the soil.” We do not know whether Mr Bright is a shot or not; frequent paragraphs in newspapers tell us that he is a great salmon fisher. Is it not monstrous that the farmer should not have the privilege of catching that food for the people which runs through his ground; and does Mr Bright ever refuse to fish in preserved rivers?

We should like to have heard a more distinct utterance to the law of landlord and tenant than Mr Bright gave. The game question is a popular one for a Birmingham constituency. It is less interesting to farmers than compensation for unexhausted improvements, with which Mr Howard's Bill proposed to deal.



## THE GAME-LAWS.

AT length we have got something interesting, if not edifying, upon these irritating, complicated arrangements with reference to game. The whole subject has been worn threadbare. All the discussions at the Agricultural Clubs simply present the matter in the light that much damage has been caused by hares and rabbits to the root crops and to tares—that comparatively little damage has been done by winged game, and that deer are occasionally destructive to farmers' property to a small extent. The latest evidence taken before the House of Commons' Committee only proved this—that the Game-laws, practically, do not interfere in any relationship that exists between landlord and tenants. No Game-laws protect the *feræ naturæ* in England; they belong to the tenants, and yet they are not better off than the occupiers in Scotland, where the law puts the landlord in possession of all that runs or flies upon, or over his ground. It is a mere matter of contract, and we are much afraid that the 12th clause of Mr Howard's Bill will not be carried.

People somehow or another like personal recrimination. Nothing gives them greater delight, however much they may attempt to deny "the soft impeachment." There has been a passage of arms between the Earl of Airlie and the editor, and a contributor to the *Fortnightly Review*, which enlivens somewhat the dreary waste of this stale controversy. Lord Airlie assails Mr Beesly's articles on the Game Question in the *Fortnightly*. His Lordship's evidence in the Committee, we may state, was not generally appreciated by tenant-farmers. He writes to the *Times*:—

Mr Beesly's method is a very simple one. All evidence that does not suit his purpose is studiously kept out of sight; when that is not enough, Mr Beesly himself supplies the necessary materials from the

resources of his imagination, and the fancy version thus produced is placed before the reader in such a manner as to lead him to suppose that a fair analysis of the evidence has been presented to him. In the article on "Deer Forests and Culpable Luxury," for example, Mr Beesly, besides carefully suppressing, according to his wont, a material part of my evidence that happens not to tell in his favour, does not scruple to put into my mouth, by implication, words that I never uttered. Having begun by inventing his premises, Mr Beesly has, of course, no difficulty in arriving at the conclusion he desires to reach. Nothing is easier, till the trick has been exposed, than to discredit an obnoxious witness by means of such devices as those to which Mr Beesly has systematically resorted in dealing with my evidence.

On the appearance of this, Mr Morley immediately rushes forward to the rescue of his contributor. He desires to inform the public that Lord Airlie is by no means the ill-used gentleman that he represents himself, and he does so by quotations from Lord Airlie's letters to himself. He states that Lord Airlie, on the appearance of Mr Beesly's article, wrote complaining about its wording, and requesting that a protest, written by himself, should be inserted in the succeeding number—a request to which Mr Morley immediately and politely acceded. Ten days after the protest was put in type for publication, Lord Airlie wrote Mr Morley as follows:—

On reading over again Mr Beesly's article, I am bound to say that I do not think the passage I referred to conveys the imputation I at first thought it did, except by a somewhat strained construction. I have, therefore, expunged everything about imputation of bad faith. At the same time, I am confirmed in my conviction that Mr Beesly has misrepresented my evidence, and I must therefore ask you to allow the enclosed letter to appear in the *Fortnightly Review*. It varies somewhat from the draft I at first sent you, &c.

During the time the letter was passing through the post, Lord Airlie must have changed his mind, for on the succeeding day he wrote:—

"On looking closely into my evidence yesterday,



after my letter to you had been posted, it appeared to me that there were some answers of mine which, with a little ingenuity, might be made to bear something like the construction which Mr Beesly has put upon them, though they certainly did not strike me as capable of bearing such an interpretation at the time. As, therefore, I do not wish to enter into a controversy with Mr Beesly, which might have no very definite result, I should prefer that neither of my letters were inserted in the *Fortnightly Review*. I am very sorry to have given you so much trouble about this personal affair of mine, but I certainly thought up to yesterday that my case was a very clear one, and did not admit of an answer."

This is not a very satisfactory position for Lord Airlie to stand in. Mr Morley characterizes the first letter we have quoted in language stronger than choice. Thus:—"Yet two months after thus deliberately withdrawing his odious insinuations of bad faith, and formally rejecting an opportunity, which he had himself sought, of setting his evidence in a right light, Lord Airlie now comes forward again with the same odious insinuations which he had expressly abandoned, on the ground that he found himself mistaken in making them."

Mr Beesly contented himself with "flatly denying each of Lord Airlie's unsupported assertions in the *Times*" as he thought "his letter deserves no other answer." Another letter from Lord Airlie, however, called out Mr Beesly on the 27th ult. In this letter he mentions at considerable length that he did not misrepresent his Lordship.

I repeat and abide by what I said. I said (and Lord Airlie knows as well as I do that I said no more) that he and his friends who defend the maintenance of the Game Laws on the recreation plea demand in effect that one-tenth of Scotland shall be kept for them as an extra playground. And when a man argues that he cannot find relaxation in a "constitutional;" that rifle shooting is comparatively no relaxation; that there is no relaxation to him like a day's deerstalking; and that it is of national importance that certain persons should enjoy such relaxation, he being all the time well aware, that to procure such recreation, a large and increasing part of Scotland—one-tenth of the whole area—must be kept in an unproductive state, I submit that my words were not too strong.

Lord Airlie says he used other arguments—the food argument for instance—and that I suppressed all mention of it. Why, Sir, I examined and answered it at great length. It is true that I did not connect Lord

Airlie's name with it. But why should I? Other people have urged the argument a good deal more strongly than Lord Airlie. I do not think it would have derived additional force, if I had said Lord Airlie urged it too. What I did was to examine the pleas put forward by game preservers one by one, connecting this plea with one man, that with another. When I came to the playground plea, I naturally introduced Lord Airlie's name, because Lord Airlie had put it most prominently forward. Lord Airlie has muddled himself, unless he is trying to muddle other people, by mixing up my two articles. But I defy him to prove that in either article I said or implied that "his opinion in favour of protecting certain kinds of game rested altogether on the playground argument," as he asserts. On the contrary, in my first article I either said or implied that he had used other arguments—viz., the argument that a man may do what he likes with his own (p. 369); the argument that the abolition of the Game-laws would involve the extermination of game (p. 365); and the argument that alteration of the law would not prevent the landlord making any contract with his tenant he pleased (p. 357). As for my second article, the article about deer forests, the article must be remembered from which Lord Airlie quotes, though I repeat that in it I never said or implied that Lord Airlie had used no other argument for deer forests, or even that this was his main argument, and though I challenge him to prove his assertion to the contrary, I do now for the first time say that with regard to deer forests the playground argument was his main argument, and to all intents and purposes was his sole argument. Lord Airlie admitted that deer could not be kept with profit; admitted that he did not lay so much stress as some people on the money left in the Highlands by sportsmen; admitted that a shooting rent is less secure than a grazing rent; admitted that to keep land under deer is to deteriorate the pasture; admitted that deer forests involve some loss of food to the nation. Then he said that there was no relaxation in the world to him like a good day's deer-stalking or fishing; that most of our leading politicians seek such relaxation; that lawyers and "people of that kind" seek such relaxation, as also do medical men and engineers, &c.; that a constitutional was the greatest bore in the world; that rifle-shooting was no relaxation by the side of deer-stalking, and enlarged in the strongest possible terms on the national importance of such relaxation. Finally, when asked if a man kept a forest for profit or pleasure, he said, "It is nothing to do with profit; nobody expects him to make a profit out of it."

This, though in one sense an unpleasant episode in the Game-law question, is a relief to the dry and stale speeches we have so often to wade through.



*RELATION OF LANDLORD AND TENANT.*

AT the annual exhibition of the Worcestershire Agricultural Society, Sir John Pakington discussed the above subject. He said that whatever differences might exist among the members of the two Houses, the earnest desire of both Chambers was to promote whatever might tend to the welfare of the country, and that they regarded with great satisfaction the advancement made in the science of agriculture, upon which depended to so large an extent the prosperity of the nation. Sir John next expressed himself desirous of expressing a few opinions in regard to two most important questions which affected agriculture, namely, the relations of labourer and employer, and of tenant and landlord. Those were delicate questions, but they were occupying the minds of all intelligent men connected with the landed interest. He wished frankly to state what, after long experience as a landed proprietor, were his sincere opinions. In the first place, he desired to clear away a misapprehension which he was led to believe existed in regard to what fell from him in that room a year ago. He had been lately told that he was understood to express the opinion that every agricultural labourer ought to have a cow. He never expressed or entertained any opinion of the kind. It would, in his judgment, have been a very nonsensical opinion. He had not changed his mind on this question; on the contrary, all his reflection had tended to confirm the view that where the agricultural labourer was a prudent, well-conducted man, who had saved sufficient money to buy a cow—and there were many more such labourers than most people were apt to suppose—it was desirable for his own benefit, and that of his family and neighbours, that he should enjoy the privilege of having a cow. He believed that no landlord or tenant could do better than to allow such a labourer to rent,

of course at a fair, equitable sum, such land as might be required for this purpose. It was certainly to the interest of the farmer that the labourer should be a contented, well-conducted, respectable man. (Applause.) There was no greater mistake than for a tenant-farmer to think that he would promote his own interests by dealing hardly with his labourer. (Hear, hear.) The more respectable the labourer was, the better the house he lived in, and the better the education he received, the better would be his conduct, and the more valuable would be his work to his employer. He (Sir John) knew from experience that where a man could have a cow it was of immense benefit to him, but where—as would be the case with the great majority of labourers—he could not possess the privilege, it would be well for the landlord and farmer to mutually take care that the labourer should enjoy a comfortable home and sufficient land to cultivate in his leisure time for the benefit of his family. On his own estate, one labourer had been in possession of a cow for four or five years, and he was now taking steps to extend the privilege to such as were able to avail themselves of it. On another subject which was now before the public more prominently than ever, namely, the relations of landlord and tenant, he should also speak with perfect frankness, and with the less hesitation, because it was no new subject as between him and his Worcestershire neighbours. Many years had passed away since the time when (their exhibitions being held on a somewhat different footing) they met at dinner in that room at the Guildhall which was no longer fit to receive them, and when he expressed to very unwilling ears opinions which were now far more acceptable. Those opinions of his had undergone no change, and they might be summed up in three words—"skill, capital,

and security." (Applause.) In these days—when the science of agriculture had in these Midland counties progressed in a remarkable degree—they would agree with him that skill and capital must be combined if the land were to be farmed profitably, and, in his judgment, the farmer who was disposed to apply his capital and skill to the cultivation of the land had a right to do so with absolute security. (Applause.) Upon the question of what was the best form of security, men might fairly differ. Some would prefer leases, others Lincolnshire tenant-right. He had been taken to task in former years for saying that the relation between landlord and tenant ought to assume more of a commercial character than had been the case. He adhered to that statement, and said that if a man having capital were disposed to apply it to the cultivation of a farm, he was embarking in a commercial business just as much as if he applied it to stocking a shop, or buying a ship, or opening a bank, and no sensible man would place his capital in any trade unless he had a fair security that he would reap full benefit from that expenditure. (Applause.) His preference, founded on his experience as a landlord and his reflection on the subject, was for a lease, provided always that as a matter of business there should be proper covenants for the protection of both parties in the concluding years of the lease. Alluding to the Bill introduced last session by Mr

Clare Read, Sir John spoke of Clause 12, which was intended to do away with freedom of contract between landlord and tenant. He must express very decided opposition to any arrangement that would do away with such freedom. (Hear, hear.) It would be an invasion of that liberty which was the prerogative of Englishmen in every class of life. It would be a slur and a libel on the character of the tenant-farmers of England to say that they required such a clause, that they were not sufficiently intelligent and able to arrange their own bargains with those under whom they rented. (Applause.) It was their own fault if those bargains were not fair to both sides. He, for one, wished them to be fair. He earnestly hoped that the most friendly feeling might long exist between landlords and tenants, and between tenants and labourers; and he must offer his congratulations to the farmers upon what he believed he might call the unexpected amount of labour at their disposal during the late harvest. He was in hope that those little differences which seemed to cloud the labour market were almost at an end, and that no bad counsel would be given to the labourers which might lead to a revival of them. If there were no permanent dissatisfaction, it might be felt that in many instances good rather than harm had been done. He believed that upon the fair carrying out of such views as he had expressed, the permanent prosperity and happiness of the great agricultural class mainly depended.



## THE FUTURE OF FARMING.

By J. J. MECHI.

FROM long practice and observation, I venture to predict that the future of agriculture, as regards the well feeding of the people and the profit of the farmer, will depend upon meat-making and wheat and barley growing concurrently, especially on that extensive portion of the kingdom suitable for cereals rather than for pasture. Abundant evidence of this exists, especially in Norfolk, where land, not naturally rich, has been made a fertile means of feeding the people with bread, meat, and beer. This has not been effected by pasture, but by the purchase extensively of foreign agricultural produce for meat making. I quote, as an instance, by no means a solitary one, where, on a farm of 1200 acres, in addition to artificial manures, about £4000 annually is paid for cake made from foreign grown linseed, and from this is produced probably £3000 worth of fat meat, and a proportionate quantity of manure to enrich the fields, and thus vastly increase the produce, not only of wheat, barley, and oats, but also of pulse, roots, clover, and other green crops suitable for meat-making. Thus effect follows cause for the farmers' profit and for the good of our country, for it is asserted by our most competent authorities (see Mr Lawes in Royal Agricultural Society's *Journal*) that the best and cheapest manure results from making fat meat; but of course this system requires additional tenant's capital, or, which is the same in effect, a smaller area of holding in proportion to the usual capital, which may be taken as at present about £5, 10s. to £6 per acre on the 47,000,000 acres which form the farmed area of the United Kingdom (see Board of Trade Returns). There is a vast margin for increase in this respect, for in Norfolk, Lincolnshire, and some other

well-farmed districts, where much meat and corn are produced by stock-feeding and artificial manuring, from £15 to £25 per acre is frequently the tenant's capital, and there landowners have also a large capital invested in suitable buildings, drainage, roads, and other necessary improvements. It is not to pasture that we must look for the future (although that is capable of immense improvement by feeding the cattle on it with foreign produce, and by draining and other means), for according to the Board of Trade Returns, the average yield of hay per acre per annum is at present under 1 ton. Foreign feeding stuffs for meat-making may be obtained in unlimited quantities; witness the lists of imports of linseed, cotton seed, rape seed, and cakes of the same; also palmtree cake, Indian corn, locust beans (containing 44 per cent. of sugar), peas, beans, barley, oats, and buckwheat. The vast importations of foreign human and animal food and drink, amounting to £70,000,000 annually, ought, after consumption, greatly to enrich our soil and increase its produce, and will do so when we come to our senses on the great utilization of sewage question. Mighty steam has changed many things, and will greatly alter and improve our agricultural practice both as regards landowners and their tenants, but it will be, naturally, a work of time. Discussion and agitation will hasten progress and improvement, and land will be brought into a more suitable condition for the investment of increased tenants' capital. The production of meat in this country at present prices is estimated at about 32s. per acre, or £76,000,000 per annum. On this farm, and on many others which I could name, the annual produce of fat meat has been during 30 years £5 per acre.

*FARMERS' CLUBS:*

WHAT THEY ARE AND WHAT THEY OUGHT TO BE.

By G. GALPIN.\*

I HAVE been thinking it would be better, instead of discussing the more practical subjects connected with agriculture, which were so fully ventilated last season, to invite your attention to some subject which, although it should be directly connected with agriculture, still did not profess to treat of the practice of it; and, in casting about for some idea, it occurred to me that our time would not be entirely wasted if we considered this evening the subject of farmers' clubs, and so to take, as it were, a review of our own position. It cannot be denied that as a rule farmers' clubs are not patronized as they ought to be by those more immediately concerned. I cannot at all account for the fact, except it be due to the apathy or indifference of which the farmer is, I fear, but too justly accused, whether it be on this subject or on any other affecting his interests, for it is a well known fact that it is a most difficult thing to get farmers as a body to think and act in concert. Does the occasion call for it—and immediately the manufacturer, the commercial man, the artizan, and mechanic, and even the labourer, as we have lately seen, organize associations, and very often by the mere force of numbers, or by the determined energy with which they work, carry all opposition before them; whilst the farmer under similar circumstances is content to fold his hands and grumble, it is true, but too often to look up to others for redressing the grievances which he ought to take upon himself to subdue, forgetting the proverb that "God helps the man who helps himself." Another cause which I fear too often militates against the good which farmers' clubs might

do is a certain amount of jealousy with which they are regarded by those not associated with them. But why this should be the case I am at a loss to conceive, for the very object of these clubs is to improve the farmer's position, whether it be by the discussion of the routine of farm work, the most approved system of farm management, or by calling attention to political or other causes which affect agriculture; and if such be the case, surely it is the bounden duty of every farmer to do his best, however humble it may be, to improve his position and also that of his fellow men. I have often heard invidious remarks made by farmers, not members of a farmers' club, on the management of those connected with a club. They forget that the very fact of belonging to a club shews a desire for improvement, and the mere fact of individual management or mismanagement has nothing to do with the utility of farmers' clubs. Their usefulness embraces a much wider range. If Arthur Young had stayed at home and attended to his own farm, no doubt it would have been better managed, and he would have been the gainer by it; but the agricultural world would have lost the benefit of his extended observations.

I think, then, our time this evening will not be entirely thrown away if we consider shortly what is the object of farmers' clubs, what they are and what they ought to be. Farmers' clubs are formed by the association of persons interested in agriculture, who meet together for the purpose of discussing any subject connected with agriculture, and this is done generally by some one reading a paper to open the subject and invite discussion. Farmers have peculiar advantages in this re-

\* Read before Blandford Farmers' Club.



spect over commercial and manufacturing men, for whereas it would in most cases be injudicious in the manufacturer to make known the details of his management on account of the competition to which he is subjected; the farmer, on the other hand, can lose nothing by the interchange of opinions, but may receive much good from the hints let fall by his neighbour. Agriculture, too, commands such universal attention, and is so interesting to other persons not directly connected with it, that it can lose nothing by being ventilated and kept before the public. But here our friends the cynics again step in and say "what good have farmers' clubs done? Have they benefited the farmers? Have they done good to the country at large?" To each of these questions I would answer "Yes." Agriculture within the last twenty years, it cannot be denied, has made great advances; and I believe that farmers' clubs, by their discussions and the interchange of opinions calling attention to this improvement, and discussing the advantages or disadvantages of certain systems of farming, have been the means of advancing agriculture greatly. Again, farmers' clubs have been of great use in calling public attention to the political and social aspects of causes affecting the interests of agriculture, and if they cannot boast of any great achievements in this respect, it is, I believe, owing to the want of organization and the combining together of the different clubs for one common object. Farmers' clubs, again, are valuable as being a nucleus or centre from which, should occasion arise, a movement might be made for the ventilation of opinions on any particular subject, or for organizing such movement. The funds arising from members' subscriptions, which are not very large, as the subscriptions are purposely kept low in order to induce more persons to become members, are generally devoted to giving prizes for root crops, or the exhibition of farm produce generally, and in some cases a fund is set apart for the purpose of publishing the clubs' proceedings.

And now I feel that my own opinions will

be found to differ from most of the members of this club, and I hope in the discussion members will freely give their own views and not be influenced by a general desire to agree with the previous speaker, for we must remember that it is in the difference of opinion that truth must be sought. My idea is that a club, to be generally useful, must make its opinions publicly known, otherwise it becomes a mere debating class, and its opinions, known only to the members of the club present, can have no public utility, and consequently can carry no weight beyond its own limited sphere of action. I am aware that the argument against making public the club's proceedings is that it tends to stifle discussion, but if the subject of discussion is to be known only to the ten or twenty members present, any public utility is done away with. Again, I cannot help thinking that the funds of the club would be well expended—perhaps better than in giving premiums for stock or prizes for root crops—if they were devoted to obtaining the services of men of well known ability and experience to lecture on certain subjects, and so open up a wider field of discussion than is generally the case in a merely local club. For instance, different counties have different modes of management, and if a man of known experience from a distant county could be obtained to detail his experience in general management, much good might be gained by the interchange of opinions. And, again, supposing any subject of special importance crops up by calling the attention of different clubs to it, public opinion would be directed towards it. There ought to be a certain connexion between the different clubs of the country. Another thing, which I should like to see connected with farmer's clubs, would be a good circulating farmers' library. There are plenty of good books and periodicals written expressly on agriculture, and although farmers as a rule are not a reading class, except of newspapers, the circulation of good standard works would tend to foster the reading and study of them. I have only made these observations to invite a discussion.

## CATTLE TRANSPORT.

AT length we have got a case that will determine how far stock-dealers or railway companies are to blame with reference to the transport of cattle and sheep. Our own opinion most decidedly is that railways have not conformed to all the Orders of the Privy Council, that it is no uncommon thing to find that the trucks have not been cleansed according to the meaning of the Act, and that the detention of animals is altogether unwarrantable—in utter violation of the law—that they are kept without food often for many hours after they ought to have been supplied. The distance from Hawick to Lynn is supposed to be accomplished in twenty four hours. In this particular case, as will be seen from the paragraph below, it was greatly more. We quote from the *Times* :—

At the Walsingham (Norfolk) Petty Sessions on Monday last, Mr James Coker, a cattle dealer in an extensive way of business, who resides at Houghton, near Walsingham, was fined, with costs, the sum of £50, 2s., for neglecting to give food and water to 820 sheep on their passage from Scotland to Norfolk. The prosecution was undertaken by the Society for the Prevention of Cruelty to Animals, and Inspector Marsh, one of the officers of the Society was present, and gave evidence in the case. The circumstances were these :—On September 18, Mr Coker consigned 820 sheep from Hawick, in Scotland, to Lynn, in Norfolk, directing them to be sent by Carlisle, Ingleton, and Peterborough, to Lynn, by the Midland Railway. By that route they should have arrived in Lynn in 24 hours. Provision was made to unload and feed the sheep at Lynn. The animals, however, did not arrive at the station till 9 a.m. of the 20th, and were then sent on by special train to Walsingham, where they arrived at 2 45 p.m., having thus been in the trucks, without food or water, for between 48 and 49 hours. Two of the animals were dead on arriving at Lynn. The defence was that the fault lay with the railway companies, and not with the defendant. The information was laid under 32 and 33 Vic., cap. 70, which provided for a supply of food and water at the written request of the consignor. No such request had been made, and the Bench convicted, with the above-named result. Notice was given of an appeal to the Court of Queen's Bench.

We are glad that this notice of appeal has been given. It may be the means of altering an Act, the ambiguous phrases of which have often been the means of allowing railway companies to shirk the duties a common sense rendering imposes upon them. There is no reason in the world why a cattle train should not travel as quickly as a passenger train; to our thinking there is every reason why it should excel in speed. Stoppages are not required, except at some 24 hours' interval; and in that time, going at the rate passenger trains run, in round numbers, about 1100 miles could be accomplished in that space of time. We do not doubt, it will be said, that the average of 47 miles is a dangerous speed. Probably so, but if it be safe enough for human beings, surely it is secure enough for cattle. This is the rate at which our great lines run—the maximum speed, it must be understood :—

Great Western .....	53½ miles an hour.
Great Northern .....	50¾     ,,
Midland .....	46¾     ,,
London and Brighton .....	46¾     ,,
London, Chatham, and Dover...	46¾     ,,
London and North Western.....	45     ,,
South Eastern.....	44¾     ,,
London and South-Western.....	43¼     ,,

Bear in mind that there are stoppages for refreshments on the way with these fast trains. For cattle it is not thought necessary to provide that within the time we have specified; therefore a journey from Aberdeen, say, to London, could easily, under proper arrangements, be accomplished within the legalized time without trouble.

We trust that this action will not only be the means of accelerating stock trains, but of obtaining better carriages. The companies derive a very large portion of their revenue from stock, and in justice they are bound to lay some of it out upon the improvement of cattle conveyances.



*GOOD ADVICE TO MR ARCH'S PROTEGES.*

AS Mr Joseph Arch's visit to Canada draws to a close, it will be interesting to the public generally to know what conclusions he has come to as the result of the experience and observation he has acquired during his travels. Mr Arch is, we believe, fully prepared to recommend Canada as the future home of his fellow-countrymen who are desirous of emigrating. Mr Arch is a thorough Englishman, as all who have had the pleasure of enjoying intercourse with him must have discovered; and he has a true Englishman's love for the old flag. Therefore, other things being equal, his feelings are strongly in favour of retaining British agricultural labourers as loyal subjects of the Crown, and he will accomplish this by advising their settlement in the greatest of Britain's dependencies. In acting, however, as the representative of a class whose own range of vision and materials for forming a sound judgment are so limited as those of the English peasantry, Mr Arch has assumed a very serious responsibility. This must be borne in mind when we come to consider his proposals or plans; and the motives by which he is actuated in devising schemes for their future benefit. As he looks upon them at the present moment, he sees them almost hopelessly dependent. They have next to no education, no money, and very limited means of effecting anything by organization or united effort. The very determination to have recourse to emigration is, in itself, an indication of the difficulty that must beset any efforts for the amelioration of their social condition at home. Need we wonder, then, if to Mr Arch himself, the difficulty is great of realizing the immediate and certain transformation that ensues on the English agricultural labourer treading Canadian soil, and entering at once into new and wholly different social and economical relations to those about him. Taking

the lowest view of the situation, as a merely marketable commodity, he is, instead of a drug in the market, an article of value beyond all price. It is he, practically, that makes the terms, not his employer. He can carry his labour, which is his capital, where he will, and find those who are anxious to pay a fair price for it. Nor is the change in his social status less startling. Here he is at once the equal and treated on an equality with the farmer whose land he tills, and who, it is a hundred chances to one, was but a few years ago himself a labourer.

Besides, he can here indulge in aspirations that he dare not encourage even in his dreams at home. He, too, may own the land; he, too, may drive his own team and look upon his own well-stocked farm. With improved communications in all directions, with a much larger amount of floating capital in the country, and vastly increased market facilities, there can be no doubt that, to the new settler in Ontario, it is really easier now to make and save money than it was thirty or forty years back. Where crops and other produce can be readily shipped, and their value got promptly in hard cash from the merchant, the wealth of the farmer must be greatly enhanced. At the period we speak of there were difficulties that time and the progress of the country have gradually removed or are still removing. Steady industry and painstaking thrift are still needed; but, given those qualities, the results are easier of achievement than they were formerly. So that, having regard to the larger demands for hired labour, and the greater advantages possessed by these settlers, when Mr Arch sees what thousands of substantial yeomen in Canada have achieved for themselves, he may be quite safe in advising as many of his clients as possible to come hither and do as others have done before them.

But, as we have already said, it is difficult for Mr Arch all at once to perceive this, and some concession may have to be made to his views in consequence. He is understood very strongly to favour a colonization scheme similar to one originally suggested by Mr Donaldson, and partially carried out by Mr Carling, and the present Commissioner, Mr McKellar. The plan consists in the Local Government clearing 5 or 6 acres of land, building a house, and allowing the settler either to pay for the work by annual instalments, or to work out the purchase money by clearing more land for other new-comers. We have never been sanguine of the results since of any such scheme, except upon a very limited scale; and if we were tendering advice to Mr Arch, it would be to let it alone, and leave the immigrant to make his way as circumstances favour him, without adventitious assistance of this kind. In the first place, we have too fresh a recollection of the great "arrearages" question in some of the new counties of Ontario, to desire to see the relations of debtor and creditor once more established between the poorer class of settlers and the Government. Secondly, it is quite certain that a settler without capital will accumulate *money* so slowly for the first ten years that he will need every dollar he can save to add to his own stock or to continue his improvements. His ability to pay, therefore, except at a great sacrifice of his own, means of doing well, is more than doubtful. Thirdly, he will find the yield from his 5 or 6 acres so small that the portion of the year not devoted to tilling his cleared land will have to be given to clearing more, or else to working in the lumber shanty, or for some more prosperous neighbours in the winter months. His time will be money to him, and he will be able to pay his debt to the Government in time no better than in money.

There are objections that apply to the ordinary settler, and they are founded on an experience that there is no gainsaying. But, on the other hand, Mr Arch is, we

believe, quite willing to engage to send for the first experiment in this direction men picked for the work, and possessing, so far as he can discover, a good share of the qualifications necessary to success anywhere. And he speaks of sending out 100 such emigrants in the first instance. We believe that if, as we hope will be the case, Mr Arch is again a few years hence a visitor to Canada, he will take any hundred average farm emigrants and compare their success in an unrestricted field of competition, unsupported by any provision or aid, with that of his colonized settlers, he will find on the whole the most satisfaction in reviewing the history of the former class. But we are quite willing, nevertheless, that every encouragement should be given to his spirited and patriotic efforts, feeling sure of this, that whether the particular scheme they came out to assist in should prove a grand success or not, if those he selects are men of the right stamp they can only better their condition by immigration. At the very worst, there are plenty of openings for their skill and industry, even if they meet with discouragement in their first effort, or find the result less easily successful than they had anticipated. And we are sure that, both from the Government and people generally, they will receive nothing but the kindest and most liberal consideration.

Another point we have before now alluded to as being urged by Mr Arch is the importance of suitable dwellings being provided for farm labourers with families. We quite admit that family immigration is what is most needed. It must also be allowed that for families to reside in the house of their employer, even were the accommodation ample—which it often is not—is an undesirable arrangement, so that it is very well to impress on farmers the importance of cottage building; and the immigrants or their advisers may well give the preference to those employers who will provide them with decent habitations. That is a matter of private arrangement, however, which will be effected by the operation of the ordinary laws of supply and demand,



and cannot be made one of public negotiation or Government interference. If the people come, the houses to shelter them are not likely to be long wanting. Good, steady labourers with families are too much in request not to be able to secure the building of a cottage, if they shew any intention of making their stay in one situation at all permanent.

But the fact is, that very few desire it to be permanent. Those aspirations we before referred to, stimulated by all the new comers sees around him, forbid him to look upon the lot of a farm hand as his final one. The man who comes here with no determination to be more than a labourer, is not the man most wanted. But he who leaves England with no better determination will soon renounce it when he reaches Canada. The labourer, as soon as he has saved a little money, will certainly seek to gratify the natural passion for holding land of his own. Servitude, however free and kindly, will become irksome, or, if he lack energy to throw it off easily, his boys and girls will soon do it for him. He will perhaps go into the bush, or he will get a small improved lot, or begin farming on the "share" principle, or he will buy a span of horses and try teaming. Where there are so many openings and no conventional restraints, the temptations and inducements to strike out in new channels are certain to predominate. That is one reason why there are so few purely agricultural labourers in Canada, but it is one full of hope and encouragement to the immigrants.

Lastly, in a country where labour is so scarce, where the effects of the climate cause production at certain periods to be so rapid, and where the summers are so short, it is useless for any one to attempt to impose arbitrary restrictions on the hours of labour. No more fatal blunder could be committed in the interest of the labourers themselves, none more certain in the end to prove its own fallacy. Is the toil properly remunerated? That is what the labour has a right to ask, and if the question be answered satisfactorily, there need be no further question as to its duration. As a matter of fact, taking the year round the hours of work in Canada are not excessive. Nor, from one end of Canada to the other will Mr Arch find an agricultural labourer who, gifted with health and strength, is really suffering from the effects of long hours. They know too well it is in the extra effort put forth when the work is plentiful that their surplus capital is accumulated. It was not by carping over an hour a day, more or less, the sturdy yeoman, who works alongside his farm hand, acquired the fund of which his present competence is the fruit. And when Mr Arch has fully realized the idea that the condition of the labourer in Canada is only one of transition to a better, he will believe with us that, when we have secured for the immigrant a cheap passage, a decent reception at the port of landing, and a free pass to his final destination—the greatest kindness that can be done him is, from that moment to leave him, like thousands before him, to work out his own destiny.

*FOOD AND COOKERY AND GAMES IN THE MIDDLE AGES.*

FROM a review of Paul Lacroix's book on "Manners, Customs, and Dress during the Middle Ages, and during the Renaissance Period," (published by Chapman & Hall) in the *Times*, we extract the following:—

What about their "Food and Cookery," which fills up a whole and long chapter? "Man," says M. Lacroix, not satisfied with providing food for his support, has endeavoured to add to his food something which pleased his taste. He does not wait to be hungry, but he anticipates that feeling, and aggravates it by condiments and seasonings. This, among other things, caused Rabelais to say that "the stomach was the father and master of industry;" but M. Lacroix, who edited Rabelais years ago, ought to have known that it was not Rabelais, but Persius, who first gave this dignity to the stomach. If this, however, be the object of man and Frenchmen, what must we think of the antient Gauls, who, we are told, "principally inhabited deep and thick forests, and fed on herbs and roots, and particularly on acorns?" If that were the position of the antient inhabitants of France, and bread and beef and mutton came in with the Romans and Franks, does not M. Lacroix and every good *gastrophile* see that France is, after all, really indebted to her barbarian conquerors for her cookery, and the best way she can revenge herself on her recent foes is to reconquer them and reduce all German cookery to the undoubted excellence of her own. That would be a far nobler revenge than any expenditure on saltpetre to regain Alsace. It is probable that in early mediæval times the people of France—for M. Lacroix is rather particular than universal, and writes as if the world were France and France alone—were amply rather than artistically fed. They had the

best bread, the best beef and mutton, splendid pork and poultry, and the very finest fish. Where the raw material was so good, cooks and cookery could not fail to arise; and even as early as the time of Poggio, Italians used to come from their own country to learn gastronomy, and especially the flavouring of sauces, in France. Mediæval France, in part, though not entirely, escaped or avoided what in the Middle Ages was the bane of English cookery, and that was the inordinate use of spices. When cloves and nutmegs and cinnamon were worth much more than their weight in gold, cooks thought that the essence of good cooking was to mix them as much as possible in what would now be called "made dishes," and more nauseous compounds, we will undertake to say, were never concocted. Think of the effect of one or two cloves in an apple tart, and then fancy eating a hare stuffed with cloves and served with cinnamon and nutmeg sauce! In nothing did the mediæval French more shew their gastronomic superiority than in avoiding to a great extent these mixtures, and in extending the use of vegetables, and especially of garlic, beans, turnips, and lettuces. As for their drinks, we suspect, much as we hear of it, that their wines were not very good. It requires many generations to master the science of winemaking, and we believe that at this moment better wine is made in France, and more of it, than was ever made before. In the Middle Ages neither was the process so careful and delicate, nor was the wine when made kept long enough. In cheese they were unrivalled, as they still are, though in some kinds Italy runs her neighbour hard. So far as the court was concerned, the palmy days of mediæval cookery in France were those of Charles VI. and his cousin, Charles the Bold of Burgundy, who feasted their courtiers with royal but ruinous



magnificence. This pomp declined in succeeding reigns only to reappear for a while in the luxurious days of Francis I. Henry II. and Francis II. still maintained the magnificence of the royal table, but after them cookery languished in the time of the religious wars, so that Brantome could say:—

“It was only by fits and starts that one was well fed in this reign; for very often circumstances prevented the proper preparation of the repasts—a thing much disliked by the courtiers, who prefer open table to be kept both at court and with the army, because it then costs them nothing.”

One piece of information we derive from M. Lacroix, and that is, that from the establishment of the Franks in Gaul down to the fifteenth century inclusive, there were but two meals a day; people dined at ten o'clock in the morning, and supped at four in the afternoon. In the sixteenth century they put back dinner one hour and supper three hours, to which many people objected. Hence the old proverb,—

“Lever à six, diner à dix,  
“Souper à six, coucher à dix,  
“Fait vivre l'homme dix fois dix.”

We have not left ourselves much time to dwell on the chapters on “Hunting” and on “Games and Pastimes.” The French would not have been true to their German extraction had they not been fond of the chase, and many spirited illustrations of this part of

his subject have been drawn by M. Lacroix from the book of Gaston Phœbus on “Venery.” There you may see the great French lord as he rides with his hounds after the stag, and how when it has been run down he presides in person at the brittling of the deer. There, too, you may see ladies hunting in litters and on horseback, attended by running footmen, and fair dames riding across the country, hawk on hand. Into the games and pastimes we cannot enter. Suffice it to say that the French, as pre-eminently the nation with the *cœur léger*, and despising us English, who take our pleasure “sadly after the fashion of our race,” have ever affected to be unrivalled in the number and excellence of their games and sports. In one of the noblest they have been always pre-eminently—tennis, the most dexterous game of all. But this sportiveness only lasted in mediæval times. Except in tennis there is no out-of-doors game in which the modern English are not superior to the French, and of some—as cricket—our neighbours have no notion at all. Nor can they approach us in boating. In in-door games they probably excel us in billiards, and are quite equal to us in cards. But some one will say, “Is not dancing a game?” Yes; and in that, too, we cannot lift a foot against the French. Much as the art of dancing has recently been cultivated in England, one must still go to the Continent, though not necessarily to France, to see what dancing really is, whether male or female.

## PROGRESS OF ITALIAN AGRICULTURE.

ITALY, since it was amalgamated under the rule of Victor Emmanuel, chiefly through the instrumentality of Count Cavour, who was a lover of farming, has developed its agricultural resources very considerably. An interesting account was given in the *Standard* last week of a visit to the Agricultural Institute and Agricultural Colony of Castelletti, near Signa. He says:—

Signa is a little town, the second station on the rail from Florence to Leghorn, and about half an hour from the former city. And Castelletti is the name of an extremely prettily situated estate on the banks of the Ombrone, a mile or two from Signa. This estate, together with others situated in different parts of Tuscany, belongs to the Nobile Cavaliere Leopoldo Cattani-Cavalcanti. Yes! Cavalcanti. If you want to know who and what his forefathers were, Dante may serve you for a peerage; and there is hardly a page of the old Republican chronicles that will not tell you something about some scion or other of the stock. He is neither “duca,” “conte,” or “marchese,” the Cavalcanti being among the small remaining number of the old Florentine families whose names are so impressed, as it were, on the very stones of the Republican city, and are so intrinsic a part of its history, that they have always preferred, through every change, to retain the style and designation under which the halls of the Palazzo Vecchio knew their fathers 600 years ago.

This gentleman, a very large landed proprietor, is the widower of an English wife, without children. There is nothing to prevent him from enjoying a *vita beata* in the true Florentine style, spending his whole time among the clubs, cafés, theatres, and drawing-rooms of either Florence or Rome. In-

stead of that he lives a probably more actively laborious life than any other man in Tuscany. He personally manages three large estates, he is a working deputy, and he has founded and entirely directs the institutions which it is the object of this letter to describe. Arriving by rail at Signa, we—myself and a friend who accompanied me—were met by a middle-aged man, in whom a gentleman recognized a perfect and thoroughbred gentleman before he uttered two sentences, but whom a tailor or tailor-made gent would have taken for something very different. This was the Cavalcanti. He had a light country carriage, with a pair of horses that shewed that veterinary science was by no means neglected at the “Istituto Agrario,” waiting for us, which took us in a few minutes up and down the steep short hills of this singularly undulating district to the entrance of the large *podere*, which is the scene and subject matter of the “Istituto.” During this short drive I obtained the following facts. The establishment is divided into two branches, the “Istituto” and the “Colonia.” The former is intended for the education of the sons of landowners, the second for the sons of *contadini*. I use the Italian phrase for want of one correctly answering to it in English. There are none or very few farmers in Tuscany. The landowners do not let their lands to be farmed but employ peasants to cultivate them on the *mezzaria*, or half-and-half system. It would be interesting to enter into the merits of the much ventilated controversy as to the merits and demerits of this system. But it would lead me too far from the proper subject of this letter. Suffice it for the present to say that the very high authority of the Cavaliere Cattani-Cavalcanti is all in favour of it. This *mezzaria* system, however, creates another class besides the owners

\* We counted one on the spot with forty-five ears.



of land and the *contadini* on their estates, *i.e.*, the *fattori* or bailiffs, a class called into being by the ignorance, city habits, and idleness of the landlords, and which generally may be observed to grow richer as the owners of the soil gradually grow poorer. Now, the lads educated at the "Colonia" of Castelletti are the sons mainly of these two classes. The inmates of the "Istituto" number, at the present time, between seventy and eighty; those of the "Colonia" between twenty and thirty. The former, for board all the year round, for education (furnished by four resident masters and twelve professors, who attend from Florence), for all the materials of general and agricultural education, medical attendance (generally *nil!*), and for a certain portion of their clothing, pay 80 francs, equal, as near as may be, to 57s. 6d. a month. The articles of clothing furnished are such portions as make up a rather smart uniform costume, consisting of a chocolate-coloured velveteen short jacket, a scarlet "Garibaldino" shirt, striped trousers, and a very jaunty white felt hat, with a coloured feather in it, the diversity of colour denoting standing in the school. Of the inmates of the "Colonia," some are maintained there gratuitously, and the others pay 40 francs a month, half the sum of the former class, or about 27s. 6d. a month. Of those maintained gratuitously, the province pays for two pupils, whom it names; and this is all the assistance the founder and director receives in shape from the public purse—if, indeed it can be called assistance to send you a lad to be boarded, educated, and partially clothed for 27s. 6d. a month! Indeed, the Government, instead of affording any assistance to the admirably patriotic work which the Cavaliere Cattani-Cavalcanti is doing, makes a considerable profit out of it. For it accepts the education he gives as entitling the pupils sent out from his establishment to a degree of diploma, and charges upon every such diploma a fee of 80 francs! And, not even content with this, it throws upon Signor Cavalcanti the payment of the officials sent to the school for the conferring of these degrees. A Govern-

ment should be economical; but it is surely a mistaken and very short-sighted policy to make its subjects feel that they are dealt with in a shameless and shabby spirit of grasping and unscrupulous greed. A very slight consideration of the above figures will prepare the reader to be in no way surprised at hearing that the Cavaliere Cavalcanti spends upon his establishment from £1000 to £2000 sterling a year, besides having defrayed all the cost of the very extensive building. We do munificent things in rich England; and money never fails to be forthcoming for any object felt to be warranted in asking for it. But I doubt whether from one end of England to the other a private gentleman could be found who expends from £1000 to £2000 a year, as regularly as the year comes, on a scheme of purely patriotic utility, which brings him nothing but a life of incessant and arduous labour. For it must not be supposed that Signor Cavalcanti hires his masters, salaries his professors, and hands out his money, and is content with the title director. He is every sense of the word the real director, manager, and animating soul of the establishment, knowing every boy by name and his conduct and proficiency.

The vacancies for lads to be maintained and taught gratuitously are, as might be supposed, most eagerly sought for by the people extending over a very wide area. But the boon of maintenance and education for 57s. 6d. a month is sparingly accepted. The class who are to be benefited are as poor and as fond of money, and the labour of a lad of fifteen or so on the land occupied by his parents is so much more valuable than the cost of his keep—that the value of the education offered is apt to be but little considered. Nevertheless, the "Colonia" maintains itself at about the number I have stated. Many pupils have been turned out who shew themselves to be most valuable men, especially as "fattori," and Signor Cavalcanti is constantly asked for young men to occupy such positions, in number far beyond his ability to supply them. The



amount of good work each one of such men is doing as a reformer and pioneer of an improved system of agriculture may be more easily imagined than described. The difficulties which Signor Cavalcanti has to contend with in reference to the inmates of the "Istituto" are of a different kind. The excellent training given to the lads has been sufficiently widely recognized to ensure the continual filling of the "Istituto" to the utmost of its capacity. But though parents may be wise enough to place a son there, it would seem that they, or at least one of them, as I gathered from Signor Cavalcanti, is often so very far from wise as to cause various troubles to the director. Florentine mamas cannot endure that their town-corseted darlings should wear nailed highlows instead of patent leather boots; are horrified at their risking making their hands hard by putting them to anything bearing any resemblance to work—*improbis labor*; and will interfere with the established discipline of the school by injudicious communications from home, and detrimental continuance of home influences. It spoke volumes as to the general moral status of the class from which these lads are drawn to hear a good and thoughtful man like the director of this establishment profess that it was his object to sever his pupils from home influence as much as possible. Reading a table of printed rules hung up in the parlour appointed for the visits of parents, I said, pointing to one, which prohibited the delivery of any letter to a pupil, until it had been submitted to the director, "Here is a rule which would not be endured in any school with us." "Ah!" replied he, "if you could see all the letters that some under my eye here, you would find that it is a very necessary rule." The boys write as often as they please to their parents letters which are not read by any authority of the establishment.

While the conversation, from which I obtained this information was going on, we had stopped before a handsome gate-house at the entrance to the estate, and were invited to visit the interior of the building. It con-

tained an admirably arranged little hospital intended for cases of infectious disorder, placed thus in a fine, breezy situation, at a considerable distance from the college itself. No one of its airy rooms, however, had ever been occupied since it was built.

Returning to the carriage, we were driven through the "podere" to the very imposing mass of building of the "Istituto." The "Colonia" is in another part of the grounds, at some distance. The education and living is quite separate. The two classes only come together, at recreation time and on Sundays. We proceeded to visit every part of the establishment, lecture rooms, gymnastic halls, dormitories, and refectory, saw all the lads at their desks in the schools, and afterwards dined with them in the refectory. There is little need of remark on what we saw; the appearance of the lads was quite sufficient to shew that all was well with them. Order and scrupulous cleanliness reigned everywhere; and the dinner went far to make it very conceivable, that the boarding and teaching of some hundred lads at that rate would be likely to result in a net loss of £1000 or £2000 per annum!

I have hardly left myself any space to give any details of the curriculum of studies; and, indeed, it is hardly necessary to do so. It includes every branch that the largest conception of what is needed to enable a landholder to discharge his duties ably and usefully would suppose to be included in it. The proportion of the hours devoted to indoor work and to out-door work is judiciously greatly varied in the case of the inmates of the "Istituto" and those of the "Colonia;" and of course the education of the latter is more practical and less scientific. And I may state, that being well acquainted with the exceedingly competent gentleman who gives his gratuitous though somewhat arduous services, as president of the commission which periodically tests the progress and proficiency of the scholars, I am able to say that the education is a real, most valuable, and eminently successful one. But the main



scope of my letter has been reached by giving the evidence abundantly furnished by the facts I have stated, that the thin end of the wedge of real and valuable progress has been driven into the very hard block of inertness, habitual laziness, and routine in this, perhaps, the most inert Rome—the old Rome of the Romans always excepted—though in many other respects one of the most promising provinces of Italy.

One little fact—to shew how hard the block is, and how difficult the first driving of the wedge. In the early part of his career as an agricultural reformer the Cavaliere Cattani-Cavalcanti was on seven separate occasions shot at by agricultural *laudatores temporis acti*, who could not in any shape endure that their old ways, habits, and maxims should be interfered with by his “new-fangled notions.”

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### THE VINTAGE IN HUNGARY.

BY looking at a book of comparative statistics, you will find that, after France, Austria-Hungary is the greatest wine-producing country in Europe, and, again, that to the wine production of Austria-Hungary, which is estimated to reach in a good year above 300,000,000 imperial gallons, Hungary contributes about five-eighths. These figures alone, without any further comment, shew the importance of this branch of agriculture for the country. It is, therefore, natural that the vintage should constitute quite an event, and be looked forward to with almost as much interest as the harvest itself. If a good vintage can never quite make up for a bad harvest, it may go far to mitigate the evil, for the 670,000 Austrian acres, equal to about 1,000,000 English acres, on which the vine is cultivated, are more or less spread over the country, so that, with the exception of the higher mountain regions in the north and east, there is scarcely a county which does not in some measure participate in the production. It is, above all, however, round these isolated heights, which rise up at various points of the alluvial basin which constitutes Hungary, that the vine is cultivated, forming a series of wine districts and regions more different in the character of their produce than almost any other country can shew. Thus, the district of Ruth in the west, that of Carlovitz

in the south, that of Ménes in the south-east produce wines allied in flavour and strength to the wines of Spain and Portugal; the hills of Villany in the south, the slopes of the Matra range at Visonta, and the mountain slopes round Buda yield wines which even a connoisseur might take for Burgundy; again, the hills alongside Cater Balatar, the environs of the isolated hill of Somlo in the west, the valley of Küküllö in Transylvania, and many others, produce wines having all the characteristics of Rhine wines, only with more body, while the detached range at the foot of the Carpathians boasts of its Tokay, with its own distinctive bouquet, and a combination of mellowness and strength which is probably unrivalled. So great, indeed, is the variety, that it becomes almost a drawback, for it is one among the many causes which have hitherto prevented Hungarian wines from becoming more generally known and spread abroad, like, for instance, Rhenish, French, Spanish, and Portuguese wines, which have, more or less, one general character, to which palates become accustomed.

#### VARIETY OF GRAPES—THIEVISH TENDENCIES —FESTIVITIES.

Of course, with such a variety of grapes as is implied by the variety of wines, the vintage extends over a considerable period, so that while with the lighter sorts it begins towards



the end of September, the gathering in of stronger sorts rarely begins before the middle of October, and the owners of the vineyards of Tokay wait for the first hoar frosts in November, which are deemed essential to develop fully the flavour and that unusual quantity of sugar and alcohol which distinguishes their wines. It may seem strange in a free country that the period of vintage in each district is not left to the discretion of the owners of the vineyards, but it is the local authorities who fix not only the beginning, but actually the period within which every one must have finished his vintage. This is an old custom, which arose at the time when most of the vineyards in the country were not the freehold property of those who cultivated them, but had to pay tithes to the landlord who owned the soil. As, however, the tithes have been redeemed by the State, and the cultivator has become likewise the free owner of the vineyards, this restriction is not likely to be maintained much longer. Indeed, this year, the small vine producers in the district of Buda, who wanted the vintage earlier than the time fixed by the authorities, remonstrated, and carried their point. It will not be to their advantage, most of the large wine producers say, for the weather has been unusually hot, and a week or ten days longer would have made a notable difference in the quality. You will say, those who thought so might have waited, and thus shamed their foolish neighbours; but this is more difficult than may seem at first sight, for they would thereby have been exposed to the inroads of self-constituted tithe-gatherers. Like game, fruit of every kind, but above all, grapes, have somehow or other in the eyes of the people the character of a *res nullius*. No one would think of taking even one wheat-ear, potato bulb, or head of Indian corn from his neighbour's field, but somehow or other the orchard or vineyard, although protected by ditch or hedge, is not considered as sacred. As soon, therefore, as the grapes begin to ripen, a number of special guardians are set

over the vineyards by the authorities. They have their elevated stands from which they watch by day, while at night they prowl about, keeping up a communication between each other by the sound of horns, with which they are provided. In some of the small towns—for instance, the one I (*Times* correspondent) am writing from (Székes Fehérvár)—there is a special functionary, usually himself the owner of a vineyard, who manages this vineyard police. His sign of office is a horn larger than the others, with which he is supposed to call occasionally, so as to keep alive the attention of his subordinates, who have to answer the call. Well, this improvised police ceases when the period fixed for the vintage is over, so that every one, whether he thinks the grapes ripe or not, must finish his vintage within that period, unless, indeed, he likes to establish a police of his own.

It would be rather difficult to assign any psychological cause for this impatience to begin the vintage, unless, indeed, the prospect of the gaieties which accompany it has something to do with it. In all the vine-growing districts, the week or fortnight during which the vintage usually lasts is a sort of mixture of hard work and amusement. It is a general outing, in which high and low take part. Your harvest home is unknown here, and the vintage takes its place in the autumn. But it has lost a good deal of its originality in many places. As the steam plough and the reaping machine are gradually doing away with your harvest homes, so the commercial spirit, which is more and more invading our vineyards, is more and more, if not doing away with the gaieties of the vintage, at least altering its character. In olden times the vintages in the districts growing the best wines were the most faithful representatives of the old custom; now you might say, the better the wine the worse is the vintage carnival, and it is only at one or the other of the humbler places which work rather for local consumption than for trade at home and abroad that you can find the genuine vintage festivals.

Such is Székes-Fehérvár, some 40 English



miles to the south-west of Buda, which you reach by rail in about two hours. All along you see to your right a low chalk range, which, leaning on the mountain slopes of Buda, gradually falls off just before this town; it is a wine district, producing a light, well-flavoured, and mostly white wine, which, however, has as yet but rather a local repute. The lower the hills the lighter is the wine. The good burghers of this place, whose vineyards occupy the lowest of these sloping hills, have no pretensions to compete with France or Spain in the market, but they have their pride in drinking their own wine. And they are a proud race, to be sure. First of all, they can boast of this town being one of the oldest in the country and the residence of the first King of Hungary, Stephen the Saint, the founder of the kingdom. Although soon after losing its rank as a royal residence, this town has played a notable part in history as one of the earliest walled towns in the country. It was not much to its advantage, for it was thereby only more exposed to all the vicissitudes of troubled times. Being, moreover, on the road to Buda from the south, it became one of the permanent posts of the Turks, when they held half Hungary during a century and a half. But it was soon recovered when they were driven out. It was in the centre of a large agricultural district, its old bishopric was re-established, and an immigration of German colonists, mostly artisans and tradespeople, in the beginning of the last century, made of it quite a little centre of civilization. Being in the midst of a purely Hungarian population, they soon became naturalized, without, however, losing altogether their individuality. Most of them have kept a record of this immigration, and they have up to this day among themselves a patrician class who have hitherto tolerably well succeeded in keeping the direction of their local affairs in their own hands. Such an element is just the one most likely to keep up old customs.

With the burgher of Székes-Fehérvár the vineyard forms, as it were, a necessary part of

his existence and position. To possess a bit of vineyard is the ambition, therefore, of every one, and he would rather deprive himself of many other things than resolve to sell it. Almost as much as the vineyard itself, some sort of building on it is equally a social necessity of any man of standing. With those of humbler fortunes it is, indeed, only a cell and a shed of some kind for the winepress; but in many instances it has grown into a snug rustic building, where not only friends may be received, but where a night, or may be some weeks, may be passed without too much inconvenience. The vintage, and, indeed, the whole cultivation, is a work of love which every one likes to superintend himself; so whatever may be the stress of business in the shop in the town, especially on the two weekly market days, when the country people all around come in to make their purchases, the master or the good wife always contrives to find time to look after the vineyard. If nothing else, it is an occasion for an outing, even if it be at the sacrifice of a walk of a couple of miles.

But when once the vintage itself approaches, it engrosses all attention. There is first a good deal to do before it begins; there are the vats to be cleaned, as well as the casks; the press must be set all right and cleaned of the dust of a twelvemonth; then vintagers are to be procured, men who squeeze the grape by trampling upon it in the old fashion with their heavy boots. Nor are the cares of the mistress of the house smaller. All these people have to be fed while the work lasts, besides preparations made to keep open house during the time. Impatiently as every one has waited for the day fixed for the opening of the vintage, on the first morning a regular emigration sets in from the town, and all is alive and astir in the vineyards. Much, of course, depends on the weather, for if by chance the autumn rains should begin just then, the vintage becomes a misery rather than a pleasure. The dusty road is converted into a quagmire, the few hackney coaches are all bespoken and almost intractable; while

that open-air amusement, visiting of neighbours, dispensing of hospitality, and the many other pleasures connected with this sort of gipsy life are marred. Whoever would take advantage of one of the few remaining occasions for seeing old Hungarian hospitality must come here for the vintage. I have been told of an officer who arrived with a transport of recruits to pass the night. He found the town quite empty; it was vintage time, and his comrade, who was on guard bemoaning his own fate, advised the new comer to go and amuse himself. On the observation of the latter that he knew no one, he was told to go in at the first vineyard where he saw a light and heard the sound of music. He did so, was warmly welcomed, and danced till morning. Some people complain that of late the old free-and-easy way of going and coming is rather on the decline, and that set visits are becoming the fashion more and more; but from all I saw, I think strangers would not fare worse now than formerly. You can scarcely pass a house where you are not asked to step in, and where every pains is not taken to shew that you are welcome; but I should not advise foreigners to go

there unless they are blessed with a strong constitution and unlimited powers of imbibing.

As the period fixed for the vintage is usually a week, there must be a Sunday in it, and this is really a grand day. Not a soul, young or old, rich or poor, who can in any way contrive it, will remain then in the town, so that you may pass a muster of the whole population in the open air. Every house in the vineyards, down to the poorest, is full of friends, who come out for the early dinner at 1 P.M., and spend the afternoon and evening there till late in the night, winding up with supper, dancing, fireworks, singing, flirting, and all sorts of other pastimes for young and old. What with superintending and directing the work which is going on, with cooking, visiting, receiving, and general merrymaking, by the time the week is over and the wine is beginning to ferment, men and women, young and old, are exhausted, and return willingly to town and their daily avocations, taking with them the recollection of the merry days they have passed as a store to beguile the tediousness of the long winter evenings close at hand.



# WHAT ABOUT THE WEATHER?

“THE weather” is the universal introduction to all society who meet, as Thackeray would have said, “promiscuously in the public street,” on omnibuses, or on these dangerous conveyances called railways. Much nonsense is talked about it and the Clerk, but sometimes the breaking of the ice about its appearance, the probable duration of that appearance, and its future, serve to beguile a journey, and often also to make lasting friends. We have often found that cold evenings, warm days, snowy mornings, sleety afternoons, chill and moonlight nights, led on to conversations of other and more agreeable and instructive kinds. “Weather Proverbs and Fallacies” was the title of a paper read before the Wiltshire Archæological Society by the Rev. C. H. Smith, which we here give:—

Now that the advance of education is driving away our folk-lore, and the vast accumulation of modern literature is thrusting out of sight the quaint old sayings, generally replete with wisdom and truth, though clad in never so homely a garb, which still linger in our country parishes, it is time for the archæologist to rescue them from oblivion, and to collect and store up these pithy maxims, the result of patient observation of Nature’s prognostics; and which (I will venture to say), being founded on such true principles, are often more to be relied upon than the *dicta* of the Meteorological Society, with all its delicate and sensitive instruments, its barometers, its wet and dry bulb thermometers, its aneroids and ozonometers to boot; for these may be faulty, and deceive us, but Nature never errs, and if we can but read her aright, spreads out the page with undeviating accuracy. Now, the labourer, and above all, the shepherd, employed all his life long on our open Wiltshire downs and fields, has

remarkable opportunities for studying the sky, and noting the signs of the seasons; and I have very often been amazed at the accuracy with which he can forecast a change in the weather, when to ordinary eyes not the slightest symptoms of alteration were apparent; but this is an instinct derived from constant observation, and to a mind not overburdened with many thoughts, has become a habit monopolizing no small part of his attention. It is an instinct which depends more upon prolonged experience than abstract reasoning; and it is an instinct shared, though in still larger measure, by many branches of the animal and even the vegetable world, beasts and birds, and insects and plants. Still, let us be just to the humble countryman, who is not guided, as these latter are by a natural born instinct, in regard to the weather any more than his fellows are in other conditions of life; but let us allow him the credit he deserves for his careful and accurate observation on a subject which requires many years’ experience, and no little balancing of evidence, before an accurate verdict can be arrived at.

## WEATHER PROVERBS.

I proceed now to mention such of the proverbs as are in most general use among us, but I would premise that some of them are common to every other county in England. How true is the well-known saying,

Evening grey, and morning red,  
Sends the shepherd wet to bed:  
Evening red, and morning grey,  
Is the sure sign of a very fine day.

And this,

Mackerel sky, mackerel sky,  
Never long wet, and never long dry.

And this,

Rain before seven,  
Fine before eleven.

And this again,

A rainbow in the morning  
Is the shepherd's warning ;  
A rainbow at night  
Is the shepherd's delight : \*

which is only our homely way of expressing  
the famous lines of Byron—

Be thou the rainbow to the storms of life,  
The evening beam that smiles the clouds away,  
And tints to-morrow with prophetic ray.

Then, again, how true is the old Wiltshire  
saying—

When the wind is north-west,  
The weather is at the best ;  
But if the rain comes out of the east,  
'Twill rain twice twenty-four hours at the least.

These are general proverbs, applicable to all  
times ; but we have an unusual number of  
proverbs in Wiltshire which describe the evils  
of too advanced vegetation in a precocious  
spring ; indeed, on a careful comparison of  
all the Wiltshire weather proverbs with which  
I am acquainted, by far the larger portion  
refers to this fact, which is perhaps brought  
home to us in our confessedly cold county  
more than elsewhere. Thus for January we  
have,

If the grass grows in Janiveer,  
It grows the worse for't all the year.

And again,

A January spring  
Is worth nothing.

For February,

Of all the months in a year,  
Curse a fair Februeer.

So again for March, in true Wiltshire  
language,

As many mistises in March  
So many frostises in May ;

and the well-known adage,

If March comes in like a lion, it goes out like a lamb ;  
If it comes in like a lamb, it goes out like a lion.

For April again,

A cold April  
The barn will fill ;

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\* In considering this prognostic, it should be borne  
in mind that in the former case the rainbow will ap-  
pear in the west, and in the latter in the east.

and again,

April showers  
Bring summer flowers.

And another, lauding the prolongation of the  
fierce winds of March,

When April blows his horn,  
'Tis good for both hay and corn ;

while even for May we have

Mist in May, and heat in June,  
Makes the harvest come right soon ;

and again,

Who doffs his coat on a winter's day,  
Will gladly put it on in May.

And for June,

A dripping June  
Brings all things in tune.

Every one of these Wiltshire proverbs, re-  
lating to the first six months of the year, pro-  
claims the acknowledged fact that a prolonged  
winter and a tardy spring bespeak more  
abundant crops and more assured plenty than  
the pleasanter, however unseasonable warmth  
which sometimes gladdens our hearts in  
winter and early spring. Nor is this belief  
peculiar to our county, or even to England ;  
it is held quite as much in the south of  
Europe, for the Italians have a proverb,  
"January commits the faults, and May bears  
the blame ;" and it is a common saying in  
Spain, "A year of snow, a year of plenty."  
Moreover, that such premature mildness of  
the seasons does not in reality advance vege-  
tation everybody who possesses a garden  
knows to his cost ; and here, again, we have  
several famous Wiltshire proverbs relating to  
this fact, and containing very weighty truths.  
The one runs thus :—

Be it weal, or be it woe,  
Beans blow before May doth go.

Another says :—

Come it early or come it late,  
In May comes the corn-quake.

And a third :—

Plant your tatars when you will,  
They won't come up before April.

But, again, we have Wiltshire sayings which



affirm what I believe to be an equally undeniable truth, that together with a prolonged winter, and a dripping spring, a dry summer is more to be desired by the husbandman. That, however, is a season we scarcely seem to have experienced this year, when the old Devonshire proverb, applicable enough in that rainy county, might have been quoted with much truth even here—

The west wind always brings wet weather ;  
The east wind, wet and cold together ;  
The south wind surely brings us rain :  
The north wind blows it back again.

Shewing that from whatever point of the compass the wind blows, rain is sure to fall. That, however, I am glad to think is quite an exceptional state of things here ; and it is very rarely indeed that we in this county experience so wet a summer. To return to the point we were considering, we have an old saying in North Wiltshire, when snow lies about in the ditches, and does not disappear, that “ ’tis waiting for more ; ” and in truth it does betoken a cold atmosphere, and more snow very often supervenes. Then February is known all over Wiltshire as “ February fill ditch,” alluding to the seasonable supplies of water which should fill the ponds during that month, otherwise a scarcity of drink for the cattle during summer would be dreaded ; and so our people have the proverb—

February fill the dyke,  
Either with the black or white,

(meaning, either with rain or snow). In March we have, in addition to the saying of world-wide renown that “ a peck of dust is worth a king’s ransom,” the less known proverb,

A dry March never begs its bread.

Of the following month—

An April flood  
Carries away the frog and his brood.

And for the excellence of draught, there is a saying reported by Aubrey as common all over the West of England, “ that a dry yeare never does cause a dearth ; ” a maxim which, I believe, would be endorsed by most practical and experienced farmers ; though another

saying that “ abundance depends upon having plenty of sour milk ” (meaning caused by thunder-storms), would not, I apprehend, be so readily allowed. Amongst other traditional sayings about the seasons which I have heard commonly quoted is one which I have now for many years verified, and scarcely ever known incorrect, and that is that “ There’s always one fine week in February,” a Wiltshire saying which I commend to the attention of all observers. There is also another about the precedence in putting forth their respective leaves on the part of the oak and the ash trees, as a prognostic of the heat or wetness of the ensuing summer, whose accuracy I cannot say I have so successfully tested, though it may possibly prove to be generally correct.

Ash before oak, there’ll be a smoke :  
Oak before ash, there’ll be a splash.

And there is another, commending the advantages of a high wind in the autumn, which runs thus—

A good October, and a good blast,  
To blow the hog acorn and mast.

Then we have a very common tradition in this county, that when the bushes are loaded with berries, a hard winter may be expected. This is a very beautiful opinion, for it betokens a lively faith in the Providence which prepares food for the birds in their time of need. It is well known too, in Scotland, where they have the proverb, which might well be taken for genuine Wiltshire—

A haw year  
Is a snaw year.

But having said this much, and called attention to the very beautiful theory it implies, I am bound to add that no augury must be drawn from it, as it rather betokens a fruitful summer just passed than any severity of weather to be expected.

#### WEATHER FALLACIES.

I now come to speak of certain popular weather fallacies, which, notwithstanding their general weather wisdom, beset our



Wiltshire rustics, as well as others of more advanced education. And the first point in this respect I would mention, is the common, though wholly groundless, belief that the moon has any influence on the weather. It is, in spite of all demonstration to the contrary, and without the slightest ground for such assertion, continually declared that a change of weather may be looked for when the next change of the moon occurs. This may, perhaps, be pardonable in "Moonrakers;" but, in the cause of truth, I must boldly and unhesitatingly declare that the moon has not, and cannot have, the smallest effect on the weather. But as this popular delusion has become so engrained in the hearts of many that, notwithstanding the absence of all argument or reason in favour of it, numbers of people of all ranks and classes still cling to it, it may be worth while to mention that, with a view to allay such popular delusions, though without, of course, for a moment themselves sharing in them, some of the *savants* of France and others of Germany instituted a long series of careful investigations; the former continued during twenty years at the Paris Observatory, the latter during twenty-five years at Vienna. Both of these diligently carried on the most rigorous examination of changes of weather in connexion with the lunar phases; but the declared result of their accurately-kept tables shewed that there was no connexion between them; and, in short, when theory was set aside, and the matter accurately tested by many thousand facts during a considerable period of time, it was definitely pronounced that "no correspondence whatever existed between the changes of the moon and those of the weather, such as were popularly supposed." The stock argument (if argument it can be called) of those who uphold the moon's influence on the weather, is that the moon does undoubtedly attract the waters of the sea; but because she causes the tides, which is demonstrable, therefore that she must needs influence the weather, which is by no means

a parallel case, and for which there is no show of reason, I cannot conceive to be a fair inference. Perhaps it may be generally felt (as a leading gentleman in this county once said to me in speaking of this subject), "I don't pretend to argue the point or give any reasons for it; I simply say I must continue to hold it, because if you take away the moon as my guide to a change of weather, I have nothing else left to fall back upon;" or as another eager advocate for the lunar influence (though himself by no means a lunatic) remarked to me, "I don't say that the weather alters exactly on the day of the moon's changes, but you will find it does so within three days before or after the change of moon; a proposition with which I most cordially agreed, seeing that the moon changes once in seven days, and the three days before and three days after completely occupied the whole week; so after this fashion it would be strange, indeed, if the weather did not change within that prolonged period. There is a very curious old Wiltshire prejudice against a new moon occurring on a Saturday, which, if not common in the county now, prevailed not many years since, but the origin of which, and the meaning of which, I am at a loss to conjecture. It is handed down in the following proverb:—

A Saturday's moon,  
If it comes once in seven years,  
Comes once too soon.

Equally unfounded, though more easily accounted for, is the notion which prevails among our people that the weather on Friday differs from that of all other days. The saying is—

To every other day in the week  
Friday is not alike.

A somewhat obscurely-worded sentiment, but doubtless it originates in the same principle which causes sailors to dread putting out to sea on a Friday, viz., the custom, once religiously observed, of keeping Friday as a weekly fast. Leaving now the moon for a while, I may class amongst common weather



fallacies the very popular notion that wet or fine weather on certain days portend continuance of such, or indeed, any special weather, as, indeed, the famous naturalist, John Ray, 200 years ago, wrote to good old credulous John Aubrey—"I reject as superstitions old prognostics from the weather on particular days." This remark was called forth by Aubrey having written, "In South Wiltshire the constant observation is, that if droppes doe hang upon the hedge on Candlemas Day, that it will be a good pease yeare ;" and then he added his own opinion—"this is generally agreed to be a matter of fact. The reason perhaps may be that there rise certain unctuous vapours which may cause that fertility." I fancy, however, that we shall be more inclined to agree with honest John Ray. Few, however, are so matter-of-fact as to pay no heed to the weather on St. Swithin's day (July 15), for all know the proverb couched in a variety of words—

Saint Swithun's day, if thou dost rain,  
Forty days it will remain ;  
Saint Swithun's day, if thou be fair,  
For forty days 'twill rain nae mair.

—a proverb which has its counterpart across the Channel, in the feast of St Medard (June 8)—

S'il pleut le jour de Saint Medard,  
Il pleut quarante jours plus tard.

If St Swithin, however, is the patron of rain, St Bartholomew is that of fine weather, and in some places is thought to counteract and displace him, for the proverb runs :—

All the tears Saint Swithun can cry  
Saint Bartlemy's mantle wipes dry.

Let it, however, in common justice, be observed, that St Bartholomew's Day (August 24) does not occur until the expiration of the forty days following St Swithin (July 15). St Michael's Day was also in old time, if not now, in Wiltshire, as it certainly is to this day in Sweden, a festival from which many prognostics of the ensuing season might be drawn: thus, if a north or east wind should chance to blow on that day, the following

winter would be very severe; if the day should chance to be fine, the next year would be dry; but if the day should be wet, the year ensuing would be mild but damp. And, again, on New Year's Eve very anxious were the inquiries as to the direction of the wind, as from that token the weather of the entire coming year might be foreknown. The Festival of the Conversion of St Paul (Jan. 25) was another day from which accurate prognostics of coming seasons might be framed, and not only of the seasons, but even of the welfare of the nation. The rhymes run thus—

If St Paules daie be faire and clear,  
It doth betide a happy yeare ;  
But if perchance it then should raine,  
It will make deare all kinds of graine ;  
And if the clouds make dark the skie,  
Then neate and fowls this yeare shall die ;  
If blustering winds doe blowe aloft,  
Then war shall vex the realm full oft.

But the Feast of Purification (Feb. 2) was perhaps the most noted, as a day by which to foretell the coming weather. This is embodied in the following well-known monkish legend, to the effect that a bright sun on the Feast of the Purification betokens more frost after than before that festival :—

Si Sol splendescat Maria Purificante,  
Major erit glacies post festum quam fuit ante.

—a proverb which has thus found its way into English :—

If Candlemas day be fair and bright,  
Winter will have another flight ;  
But if Candlemas day be clouds and rain,  
Winter is gone, and will not come again.

I need scarcely say that these are all popular delusions, founded on no reliable basis, though doubtless they do occasionally, however unfrequently, by accident come true; and then they attract unmerited attention, and are held up to admiring disciples as infallible weather guides. One thing, however, seems quite certain, and that is, that if our observations are recorded through a long period of time, there will be found to be a balance of averages, both as regards heat and cold, and wet



and dry weather; and in short, the general average through the whole period will be found to be maintained. So true is another Wiltshire proverb,

No one so surely pays his debt,  
As wet to dry, and dry to wet;

or, as they have it in Scotland—

Lang foul, lang fair.

Not so accurate, I think, is another, though it is the exclusive property of this county, and was certainly implicitly believed in by our ancestors:—

When the hen doth moult before the cock,  
The winter will be as hard as a rock;  
But if the cock moult before the hen,  
The winter will not wett your shoe seame.

—a proverb as poor in rhyme as in reason, though doubtless to be honoured for its antiquity, as also because it belongs to Wiltshire. There is also another saying, current in this county as elsewhere, to the effect “that a green Christmas makes a fat churchyard.” This I believe to be wholly a mistake, and that, on the contrary, the milder the Christmas the more healthy for the human race, as was indeed triumphantly proved by the return of the Registrar-general last winter. But to shew the pertinacity, and I may say the unreasoning tenacity, with which the Wiltshire labourer will cling to any old saying handed down to him from his fathers, I was opposing the above proverb, which an old man quoted to me at the beginning of 1845, and expressing my disbelief in it, though not at all to his conviction; and in the summer I recalled to his recollection the same proverb, remarking that we had had unusually few deaths in the parish that year, to which he replied, “Wait a bit, sir; the year hasn’t come to an end yet;” but before the end of the year, after the battles of Alma and Inkerman had taken place, he came to me with triumph in his face, and said, “I told you, Sir, the proverb would come true; the green Christmas last year has made a fat churchyard, for you see how many poor fellows

have been killed in the Crimea!” After this nothing more was to be said; with the *rationale* of the proverb he had nothing to do, it had come true, and that was all that concerned him, and he is now a firmer believer than ever in that antient tradition. And now let me say a word about almanacks which pretend to foretell the weather. It is perfectly marvellous how gullible is John Bull, eager to swallow any prognostics, be they never so unreliable, if only their authors are bold enough to be decisive in their predictions, and when, in the year 1838, by a fortuitous coincidence, an adroit Hibernian (as he has been happily styled), named Patrick Murphy, accurately foretold the coldest day of the season (which, from the law of chances, must occur occasionally within a great number of conjectures), the rage for weather almanacks rose to its height; the wildest predictions were hazarded, and though their failures were generally manifested, nothing would convince the determined believer; and I myself knew of a case where an agriculturist on a small scale, with more credulity than wisdom, wrote to the editor of the almanack to which he pinned his faith, and entreated him to name the most fortunate day for wheat sowing. In justice to Wiltshire, let me hasten to add that this man was a native and inhabitant of Somersetshire. I suppose, too, it is allowed to presume there is a larger amount of Boeotian dulness to be found in the more western counties, as the famous Lord Thurlow once remarked, after holding an assize at Bodwin, in Cornwall, “That the farther West he went, he was more and more convinced that the wise men came from the East.” Now let me, in conclusion, assure the inhabitants of Wiltshire that the almanack-makers know nothing about it, and that the time is not yet come when—

Careful observers might foretell the hour  
By sure prognostics when to dread a shower.

If they rely on the almanack-makers, or the moon, and leave their umbrellas at home in



consequence, they will infallibly be drenched, as they deserve to be ; whereas if they listen to the experience of the labourer or the shepherd—still better, if they use their own eyes and judgments, and observe the sky, and the clouds, and the wind, not forgetting the plain lessons read to them by many branches of the animal world in this particular—they will rarely be led astray. The signs to be derived from the animal world are very numerous and very reliable, and are much observed amongst our people in consequence. As examples of the most common in this county, they will tell you that seldom indeed will a wet day be found to follow, when in the morning cows are seen lying down in their pastures ; still more seldom when rooks are noticed high in the air, or swallows are seen at a great height hawking after flies ; but rarest of all when three white butterflies are seen together in the garden or field ; the latter is a sure sign of a fine day, which I have hardly ever known to fail. They will tell you on the other hand that when the distant downs look near ; or the common plover or peewit, which frequents our downs in such numbers, becomes restless ; or the bees hurry home, and none leave the hive ; or partridges grow wild ; or sea-gulls make their appearance so far inland ; or pigs carry straw in their mouths ; or insects fly low ; rain is at hand. These are but samples of many similar instances of unfailing instinct in regard to weather, which every student of Nature admires in the various

branches of the animal kingdom. Perhaps I may return to this part of the question another day. I will conclude now with the clever lines of Dr Jenner, which sum up the matter very accurately :—

The hollow winds begin to blow,  
The clouds look black, the glass is low,  
The soot falls down, the spaniels sleep,  
And spiders from their cobwebs creep ;  
Last night the sun went pale to bed,  
The moon in halos hid her head ;  
The boding shepherd heaves a sigh,  
For see ! a rainbow spans the sky ;  
The walls are damp, the ditches smell,  
Closed is the pink-eyed pimpernel ;  
The squalid toads at dusk are seen  
Slowly crawling o'er the green ;  
Loud quack the ducks, the peacocks cry,  
The distant hills are looking nigh ;  
Hark, how the chairs and tables crack,  
Old Betty's joints are on the rack ;  
And see yon rooks, how odd their flight,  
They imitate the gliding kite,  
Or seem precipitate to fall,  
As if they felt the piercing ball ;  
How restless are the snorting swine,  
The busy flies disturb the kine ;  
Low o'er the grass the swallow wings,  
The cricket, too, how sharp she sings !  
Puss on the hearth with velvet paws  
Sits wiping o'er her whiskered jaws ;  
The wind, unsteady, veers around,  
Or, settling, in the South is found ;  
The whirling wind the dust obeys,  
And o'er the rapid eddy plays ;  
The leech disturbed is newly risen  
Quite to the summit of his prison ;—  
" 'Twill surely rain, I see, with sorrow,  
Our jaunt must be put off to-morrow."

## TOO MUCH CORN.

WITH prices of wheat so high as they are, and with a gradual tendency to rise, as the Board of Trade Returns assure us (the advance in foreign wheat in the course of a year being, as pointed out in this Magazine last month, 4d. per cwt., which gave on our imports up to the end of September an aggregate increase of about half a million sterling), it is hardly probable that Mr Delmar, an American, will manage to convince the world that we are growing more bread-stuffs than we can eat. Mr Delmar is great in statistics. Did he not attend the Statistical Congress at St Petersburg, and astonish the members by the wealth of his general knowledge and the unfathomable depth of his figures? Mr Delmar tells his countrymen, and of course through American newspapers the whole world learns his views, that we have too much food. And the whole world, or "commercial world," as he qualifies it, being interested in the question, ought to be made aware of the sad fact that we have a plethora of wheat as great as that which existed in Egypt during the seven plentiful years; and yet for all we read nearly every day of melancholy cases of starvation. Mr Delmar thus brings forward his array of figures to do battle in his cause:—"Europe, population 302,000,000, cereal product 5,335,000,000 bushels, or 17.7 bushels per head; Asia (Turkey and Russia), population 27,000,000, cereal product 250,000,000 bushels, or 9.3 bushels per head; Africa (Egypt), population 8,000,000, cereal product 80,000,000 bushels, or 10 bushels per head; Australia, population 2,000,000, cereal product 30,000,000 bushels, or 15 bushels per head; North America, population 52,000,000, cereal product 1,725,000,000 bushels, or 33.2 bushels per head; Central America, population 3,000,000, cereal product 20,000,000 bushels, or 6.7 bushels per head; South America, population 28,000,000,

cereal product 217,000,000 bushels, or 7.8 bushels per head; West Indies, population 4,000,000, cereal product *nil*; all the rest, population 26,000,000, cereal product 200,000,000 bushels, or 8 bushels per head; add 2,000,000 population of scattered parts open to commerce, and add also 70,000,000 bushels of cereal product imported from the trans-commercial world; total population 428,000,000, and cereal product 7,727,000,000 bushels, or a fraction over 18 bushels per head."

The largest amount of cereal produce that can be consumed annually per head, says Mr Delmar, is from 8 to 10 bushels. What is consumed beyond this he goes on "must be for seed, for the food of animals, for the manufacture of spirits, fermented liquors, sugar, or starch, or for fuel. For some of these purposes—as for food, seed, and fodder—the use of grain is necessary; for others—as for starch, sugar, and beverages—its use is up to a certain point, economical; beyond that, and always when used for fuel, it indicates over production and loss. England contains one of the best fed populations in the world; nevertheless, the entire consumption of grain in England, including the enormous quantities converted into starch and beverages, or to food for animals, is less than 2 quarters (16 bushels) per head per annum, of which the home product is 10 bushels; yet the world at large produces nearly 19 bushels per head, and the precious staff of life is thrust into the stoves of Western farmers for fuel."

Mr Delmar next proceeds to point out and rightly so, that the introduction of steam into agriculture has greatly increased the power of production, and that railway communication within the last twenty or thirty years has tended in the same direction. But mechanical inventions, while stimulating increased growth tend also to force prices down. Taking as



a basis the United States census, he remarks,

In 1820, 1840, and 1850, respectively, it required 21 persons out of every 100 of our population to produce the food needed for the whole; in other words, 21 per cent. of the population were actual agriculturists. During the whole period of 30 years there was no mechanical improvement material enough to dispense with the manual labour of a single husbandman. In 1860 the proportion of agriculturists had fallen to 16½ per cent., and in 1870 to 15½ per cent., so that now but one person out of 6.46 tills the soil, whereas twenty years ago one out of 4.76 was required. This shews a mechanical improvement equal to about 36 per cent., or little over one-third. Since 1848 the increase in currency and credit in this country has been enough to have at least doubled the price of grain, possibly trebled, or even quadrupled it, while the advance of mechanical improvement in this country has only been sufficient to reduce it about one-third. It is quite a safe computation to say that, if not produced in excess of the demands for its use, the price of grain should have advanced since 1848 at least two-thirds over its price at that time. Yet we find, upon turning to the market reports of the two periods, that the price of corn, the principal grain of the country, was precisely the same at both. It was 67 cents, gold, per bushel, in 1848, and it is 67 cents

per bushel, currency, now. If this does not demonstrate over-supply, political economy is a valueless science, and observation in matters relating to bread-stuffs must go for nothing.

Grain products are low in comparison with other commodities, the wages of agricultural labourers are on a very diminutive scale, agriculture is being abandoned by large masses of the people in America, prices of agricultural lands advance but

Slowly, slowly, creeping on from point to point, and all in consequence of the fact that the granaries of the world are too full, and that those of the United States are fuller in proportion than those of any other country!

Mr Delmar desires "the most careful consideration of all who may read his communication." We are afraid that those—and there are many, notwithstanding all our prosperity—who are necessitated to regard "half a loaf as better than no bread" will not greatly appreciate his prophecy that ruin is nearing us because corn is too abundant in the land.

## Implements and Machines.

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### *THE REFRIGERATING APPARATUS.*

ON Tuesday, a number of gentlemen attended at the factory of Messrs Siebe & West, Mason Street, Westminster Road, in order to witness the working of an ether refrigerating apparatus, which Captain F. Warren, R.N., the inventor of the well-known "cooking-pot," proposes to apply to many useful purposes. The apparatus consists of a small steam-engine, to which is attached a second cylinder for condensing ether vapour. The cold produced by the expansion of the condensed ether is utilized by being communicated to brine contained in pipes around which the ether circulates. The brine thus cooled is used in its turn either to freeze water or to cool air, the water being contained in reservoirs immersed in a vessel of cold brine and the air being conveyed in pipes, which wind backwards and forwards in such a vessel. The ether employed, being contained entirely in closed apparatus, is scarcely at all wasted, and little more than its first cost need be taken into account. In the experiments, the moisture on the outside of the pipes leading to the refrigerator was rapidly frozen; and the air of the room, after being withdrawn at a temperature of 62 deg., was almost immediately returned into it at 45 deg.; while, as this process continued, the temperature of the room was rapidly reduced, and might easily have been brought to the

freezing point and so maintained. Captain Warren claims that the temperature of any limited space can thus be kept down to almost any required degree; and he proposes to apply the method to the construction of cold chambers on board of ships, to be used for storing fresh provisions, or, in case of merchant ships, for the conveyance of perishable freight. Thus he would have a cold chamber for bringing dead meat, say from Aberdeen to London, and would accomplish this at a very small expense; but he does not think it possible to freeze a whole cargo of dead meat, so as to obviate internal putrefaction during the long voyage from Australia. He proposes, however, to cool railway carriages in hot climates, to provide cool vans for the conveyance of dead meat and other provisions in India, to cool the air admitted into hospital wards in hot climates, and to provide an unlimited supply of pure ice at almost nominal cost. Messrs Siebe & West have prepared the necessary machines for all these purposes; and among the visitors witnessing the experiment were some officials from the Admiralty to examine into the matter with reference to its applicability to the wants of the navy. Captain Warren asserts that one of his cool chambers would allow a man-of-war to carry a month's supply of fresh meat and vegetables.



## The Farm.

### JUDGING BY POINTS.

By ALEXANDER BRUCE, Chief Inspector of Stock for New South Wales.

#### I.—FAULTS OF THE PRESENT SYSTEM.

1. *It leads to erroneous Awards.*—This it does from three causes.

- (1.) Through a want of ability on the part of the judges.
- (2.) Through the hurried manner in which they judge.
- (3.) Through prejudice on their part for, or against, particular breeds, or strains of blood, and through over or under valuing particular points in the stock.

The *first* cause is, up to a certain extent, at the larger shows at least, of comparatively rare occurrence, but oftener than is generally allowed; for, when the entries are numerous, and the exhibits nearly on a par—some excelling in one point but defective in another—it not unfrequently happens that judges are led, by the present “rule of thumb” system, to commit palpable mistakes. For example, cattle are being shewn in a class, some of which are high in “quality” but inferior in “form,” others, again, are good in some points of “form” but defective in others, while some are good in both “quality” and “form,” but defective in “vigour” and “size.” The judge is, of course, anxious to act fairly to the exhibitors, and sets about summing up and balancing in his mind the good and bad qualities or points of the several exhibits, in order to arrive at a correct decision; and any one can see that this process of mental calculation stands a very poor chance of leading to a correct decision under the per-

plexing circumstances in which the judges are placed. In fact, the decisions of all but the very best judges are, in such cases, little better than good guesses. If, again, this be true as regards the judges individually, it can easily be seen how very much worse the case is as regards the judges collectively; and how much more difficult it is for them—if they do not set down the marks for the value of the different points in black and white—to arrive at correct and unanimous decisions, where the exhibits are of merely equal but of diverse merit. Thus, there are generally three judges acting in a class, and it is no uncommon thing, at first, at least, to find them all holding different opinions as to the merits of the several exhibits, and each dwelling on the excellences of the animal he prefers, and the defects of those favoured by his fellow judges. The consequence is, that they either allow the judge with the largest amount of argument to have his way, or they perhaps settle the matter by casting lots as to whose opinion is to be followed.

The *second* cause—too hurried decisions—is of too frequent occurrence. Even where the number of exhibits is comparatively small, it is too much the custom with some judges to hurry through the work. Where, again, the exhibits are numerous, it is a matter of necessity for one set of judges to go quickly through them. When it is considered that the whole aim of the show may be defeated, and months of preparation and heavy outlay thrown away through carelessness or haste, to the bitter disappointment of the exhibitors,

and of those who have had the management of the exhibition, it is the height of folly to run the risk of giving incorrect awards through hurrying over the judging.

The *third* cause of erroneous awards alluded to is prejudice on the part of the judge for a particular breed of stock or strain of blood, or for a particular point of the animal, and a dislike, or at least a disregard, for the others.

The fact of some judges being prejudiced in favour of particular breeds and families and of particular strains of blood is so natural and notorious as to require no proof. If it did, the remark which is constantly heard of such and such a judge being a "Booth" and the next a "Bates" man would be sufficient confirmation of the assertion.

It is equally natural, and quite as notorious, that some judges consider certain points of "quality" or "form" the most essential in a beast, and set too low a value on others. This has a most material effect on the decision, especially when the question as to whether "quality" or "form" should have the call, turns up. Even where points of "form" are pitted against each other, the divergence of opinion among judges is often very great, and those, who are otherwise good judges, give very erroneous decisions both through under and over valuing particular points.

These erroneous awards of course account for the want of uniformity; or rather divergence of opinion which we every day see in respect to the same animals coming before different judges, and which tends so much to confusion and doubt as to the value of the different points in stock, and the excellences and defects which the animals exhibited.

2. *The present system of judging does not require the judges to give the reasons for their awards; and it, therefore, fails to satisfy the bulk of the exhibitors, as it ought to do, that they have been fairly dealt with.*—It is of course impossible, under any system of judging to satisfy *all* the exhibitors that the awards are *all* correctly made, and that all the

animals are properly placed; but the majority of those who call the judges' decisions in question do so through ignorance; and, if the excellences and defects of the exhibits were pointed out by the judges, and the reasons for their decisions thus given, this class of exhibitors, who are now discontented, would be satisfied that the judges had acted fairly, and would make no complaint. The present system of judging is therefore unsatisfactory, as it does nothing towards allaying this needless discontent.

3. *It fails to direct breeders, who are looking for stock to improve their herds in particular points, where animals high in these points can be found.*—Were the judges to state in what particular points the prize and commended animals excel the others, an authoritative record of these points would be created, to which breeders would turn when in quest of stock possessed of certain points of particular excellence, and thus save themselves a great deal of trouble and expense in visiting the different herds to look for animals high in the qualities they desire to engraft on, or increase in their stock; while they would at the same time be put on their guard against any defects these prize animals might have, through their shortcomings, as well as their excellences, being noticed by the judges. If the record were once established, breeders would be enabled to see how even the far back progenitors of stock, which they were inclined to purchase, stood in regard to every point of any importance. The present system of judging gives no such information, and therefore fails in this most important respect.

4. *It fails to afford those who are anxious to acquire it, a knowledge of the excellences and defects of stock, and therefore does little or nothing to advance this most important branch of Agriculture.*—If the judges of stock at the principal shows were to give the reasons for the decisions at which they arrive, they would of course be published with the lists of prize in the daily papers the day after the stock were judged, and visitors, going round the stalls with these papers in their hands, would



be able to see why one animal was placed before the other, and thus learn in the course of *one day's* attendance at a show, more than they now do in *ten years* under the present system of judging. In this respect also, the existing system is a failure, and ought to be altered; for one of the principal objects of shows is the dissemination of information; and every endeavour should be made to render them thoroughly educational.

The fact is that our shows now scarcely confer one tithe of the benefit they ought to do, and public opinion is frequently misdirected, while not an exhibition passes but a great deal of dissatisfaction is caused to exhibitors and the public, both through the want of information from the judges and erroneous awards. As regards the educational element, again,—the great object for which shows were established,—these exhibitions are every whit as wanting in it as they were twenty years ago; and it surely cannot be the case, that every institution in the Kingdom is to improve and progress, and agricultural exhibitions stand still. It is, no doubt, questionable whether the remedy hereafter proposed be the right one; but its proposal, if entertained and discussed at all, must do good in calling attention to the matter; and, if it does so, the object of the writer will be served.

## II.—THE REMEDY—THE POINT SYSTEM.

1. *Mode of its initiation.*—The remedy for all this would be to judge the stock by points; and that mode of judging might be initiated by adopting some such course as the following:—

The opinion of breeders throughout the Kingdom should be taken, as to the points which should be adopted for the different sorts of stock, and the relative values which should be placed upon these points. With this view the Committees of the Royal Agricultural Society of England, of the Highland Society in Scotland, and the Royal Irish in Ireland, should prepare and print tentative award papers for the several breeds of stock

in something like the form that will be afterwards given in this paper, and should send them round to the different Local Agricultural Associations for consideration and report by their members. In this way the opinion of every judge worth having would be obtained; and when they were, the Reports of the different Local Associations could be gone through by the Committees of the three principal Societies, and the points and their values fixed in accordance with these opinions. After that, again, a joint Committee might be appointed by the three principal Societies, to consider the scales of points and their relative values thus fixed upon; and agree on a general scale for the whole Kingdom. In this way both correctness and uniformity would be secured, and there could be no cavilling at the points fixed upon, or the values given them, as they would be the result of the collective wisdom of all the best judges in the Kingdom.

The course here recommended would take a little time and trouble, and would no doubt create considerable discussion as to what the points ought to be, and what values should be placed upon them; but this would all do good, for there is no subject on which breeders and farmers require more to obtain correct information than on this; nor one, the discussion of which would tend more to the general improvement of stock and the development of their most valuable points. If the three principal Societies would agree to this mode of judging, and some such course as that here suggested for initiating it were followed, the system might be carried into effect in the course of twelve months, and the labour could not possibly be better bestowed.

2. *The advantages of the point system are, among others, the following:—*

- (1.) With ordinarily competent judges, it insures correct and, of course, uniform awards.
- (2.) It affords the most ample information with respect to the exhibits and their

points ; the award papers forming exhausting, and, at the same time, very concise reports as to their good and bad qualities.

- (3.) It is in a high degree educational, as the reasons are given for all the decisions, thereby affording those, who attend the shows for the purpose of acquiring a correct knowledge of stock, the best possible opportunity of doing so.

To shew that this system possesses the *first* advantage claimed for it—correct and uniform awards—and to illustrate the mode of carrying it out, we will suppose that a scale of points has been fixed upon in the manner suggested, for the whole Kingdom ; that award papers have been prepared like those given in Appendix A hereto, and that the judges have commenced their duties in a class of ten exhibits. The first thing they would do (as they could not be expected to take the points of all the animals in the class), would be to send back, say the six possessed of the least merit, to their stalls, including, of course, all those which were very defective in any one material quality or point, or in vigour or size, and draw up together in a line the four head left in the ring, which, for convenience sake, we will suppose are numbers one to four, inclusive of their class. Then, instead of attempting to give one animal after the other the whole marks which they consider it should receive for the several points, the judges should take each of the different points, one after the other, see how the several animals in the class stand in regard to it, and allot the cattle their proper number of marks for the point. To make this more plain, we will suppose that the judges begin by examining the four animals in regard to the first group of points, “general style and carriage,” “colour” and “bone,” and that they find No. 3 the best in that group. They then settle among themselves how far that exhibit is from perfection, as regards the group

of marks in accordance with the authorized scale of points. They would then in the same manner agree as to the animal nearest best in this group, say exhibit No. 1, and allot it its proper number of points, bearing in mind the number given to exhibit No. 3 ; and so on till all the four exhibits received their marks for the *first* group. The same course would then be followed with regard to the *second* group, “hair and touch,” “handle” and “evenness of flesh and fat ;” and so on with all the groups in succession, until they were completed, when the numbers would be summed up, and the animals with the highest number of marks would, of course, be placed first.

In pointing the exhibits, the judges could arrange among themselves either that one of them should take the lead throughout, in calling the numbers of marks to be allotted to the different animals for the various groups, or they might lead in turn.

Working in this way, it is scarcely possible for the judges to make mistakes, for they would thus, as it were, be pointedly asked how the different exhibits relatively stood in regard to every point which an animal ought to possess ; and any one can see that this would be of immense advantage in judging, in so far as it is not the ability to say whether the attention is called to it, whether a point is good or bad, which constitutes the judgment (for almost every one who knows anything of stock can do that); but it is the faculty of passing *the whole* of the points in review before the mind's eye which does so ; and in proportion as this faculty is possessed in greater or less degree by the judge, so is his award to be depended upon or questioned. The point system, as has been said, brings every point under review, and would therefore, with ordinarily competent judges, insure correct awards to an extent which cannot possibly be secured in any other way, and this especially with the points and the values fixed, as has been proposed, by the principal Agricultural Societies.

Where the entries are few, it is generally



easy to give correct awards; but if they are numerous, and many of them of nearly equal merit, the animals must be taken to pieces and examined point by point, otherwise erroneous decisions are certain to be given; and surely it is better that this should be done systematically, in "black and white," than as it is at present, mentally, if at all, "by rule of thumb." Some few judges are, perhaps, able to give correct decisions under such circumstances; but in most cases the judges, without going through the exhibits point by point, setting down the proper value of each point as possessed by the different animals, and summing up the numbers thus allotted to each animal, would be all abroad, and would fail, as they now frequently do, to give thoroughly correct awards; for not only would they overlook defects and excellences in the exhibits, but being bound by no authorized scale or value of points, they allow their prejudices with respect to certain breeds and points to lead them into error.

This is especially the case as regards the judging of the stock exhibited for the challenge cups, and the prizes offered at the great summer shows, and the principal Christmas exhibition of fat stock; and here again the point system would enable correct and uniform awards to be given, although the animals might be of three, four, or even five different breeds. To do this properly however, the committees of these societies and associations would require to ascertain the difference made by dealers and butchers in purchasing fat stock of the different breeds on account of the superiority or otherwise of the meat, and the lightness or heaviness of the offal of one breed compared with the other, and agree to a fixed allowance for the possession of, or deficiency in these qualities, the allowance to be represented by a certain number of marks, when animals of the different breeds meet in the ring. Thus in judging, while all the exhibits receive the marks to which they are fairly entitled—and those only—for the several points including

"size" and "weight," those which were superior in the meat and lightness of offal would, in addition to these marks, receive the proposed allowance for these superior qualities. If this were done, and the point system fully adopted, the judging of the different breeds of stock in the same class would become a comparatively easy and satisfactory matter, and the tedious, uncertain, and highly unsatisfactory work, which under the present mode of judging has now annually to be gone through, would be at an end—while the questions as to what breed of stock is the most profitable for the breeder and farmer would be in a fair way of being settled.

With correct awards there would of course be uniformity, and we should not then see the same animals change places, as they now frequently do, at the different shows.

The *second* advantage—the large amount of information which the point system affords—will be easily seen. In no other way can information be given with respect to the exhibits at a show, in such a full, concise, and practical shape as by the point system. In fact, the award papers are elaborate reports of each exhibit pointed, and shew how near it comes to, or how far it is from, perfection in every point and quality an animal should possess. In any other way it would take the judges ten times the time and labour to give the same amount of information with respect to the different exhibits, which they can do in the award papers, and then it would not be of nearly the same value to breeders and the public. To turn the award papers and points to the best possible account, however, they should be analyzed, and the marks so placed in tabulated forms as to shew how all the animals stand with respect to each other in the different points. This has been done in Appendix B with the *pro forma* award paper given in Appendix A. In this analysis it can be seen at a glance, not only how the different animals in a class stand with respect to each other in the various points, but also how exhibits in the different classes do so.



This would be very valuable and interesting to all breeders, but especially to those who wished to improve their stock in any particular point, for by glancing at this analysis, they would at once see where they could obtain stock high in such a point, and apply accordingly; while, again, exhibitors would have their attention particularly directed to the points in which the animals were defective, and be thus led to purchase stock to remedy these defects.

Further, these award papers being permanent records, would be of great advantage to breeders in after years; for instead of getting as they in most cases now do, a vague, doubtful, and imperfect account of the points and appearance of the progenitors of animals, which they are inclined to purchase on account of their excellence in some particular point, they would only have to turn to the proceedings of one or other of the principal agricultural societies, and there learn, by a perusal of the award papers of their shows, as much with respect to the animals with which they wish to become acquainted, as if they actually saw and examined them.

Looking again at the *third* advantage claimed for the point system—that it is in a high degree educational—we find that the existing mode of judging is not for a moment to be compared to that system. At present the judges give no reasons for their awards, and merely decide which animals are the best; and if the uninitiated wish, as they always do, to know why one animal is preferred to another, they receive no information whatever from the judges, and can only guess at the excellences of the one and the defects of the other. Under the point system, however, we have, as has been already said, an elaborate report on each animal pointed, shewing how nearly it approaches too or how far it is from perfection in the estimation of the judges in every quality. And although the most important object to be kept in view in making the arrangements for judging at shows is to select judges who will be capable of giving correct decisions, certainly the object next in

importance is to carry out the judging in such a way as to render the exhibition thoroughly educational, and to afford the greatest possible amount of information to the breeders and the public with respect to the stock shewn and their excellences and defects, thereby teaching the uninitiated, and educating the rising race of breeders. In this most important respect the advantage is wholly on the side of the point system.

There are only *three* objections of any apparent weight, which have been brought forward against judging by points:—

- (1.) That very few of the judges would be capable of judging in that way.
- (2.) That even if they were, the system is too tedious and would occupy more time than could be spared.
- (3.) That judges would dislike to judge in this way.

With respect to the *first objection*, it is alleged that, although there are many judges who are able to say with certainty whether an animal is good or bad, and which is the best in a class, yet they could not give the reasons for their decision, nor say in which points the one animal is superior to the others; and especially that they could not give the proper number of marks for the several points. Now this is a palpable mistake; for any one can see that no one is qualified to be a judge who cannot take an animal to pieces, *i.e.*, who does not know every point and quality an animal ought to possess; and that, if a person know these points and qualities, it is absurd to say that he could not, after a little practice, set down the relative values of the different points in the Award Paper, according to the scale fixed by the principal Agricultural Societies, and thus give the highest number of marks to the best animal. Or, putting the matter in another shape, it is absurd to say that a person can form a correct estimate of some 40 to 50 points in a lump, and not be able to do so with respect to each point taken singly. It is granted that the judges would at first find some difficulty in



allotting the proper number of marks for the various points of the different animals, but this would only be felt at the very commencement. If they were careful at the beginning to fix a fair standard of excellence for each point, and to allot the correct number of marks to the first animal, they would have no difficulty whatever in dealing fairly with all the exhibits brought before them, and giving thoroughly correct awards. It would of course in this, as in everything else, require a little practice on the part of the judges to get through their work expeditiously and accurately, but a very little, a few hours at the most, would enable them to do so. It is, however, scarcely necessary to argue this point, for we find that stock of all sorts are now judged by points on the Continent, in the United States, and in some cases even in Great Britain, and that too under a system far more difficult to carry out than that here suggested.

The *second objection* is that "there would not be time to judge the stock by points." This objection is also more apparent than real; for it is only when new to the work that the judges would take longer to judge by the point system than by the present; and in the initiation of the proposed system two sets of judges might be appointed to each class. There is now no lack of good judges in the country, and one set could take the males and the other the females. If there were any scarcity of judges, each set might consist of *two*, as a third man could, where the two judges in a set disagreed, be taken from the other set. When, however, the judges had obtained a little experience in the new system, the two sets would not be necessary, as they would then get through the work as quickly under the point system as under the present. It is true that there may be a few classes in the show, where the exhibits are comparatively easily placed, and where the judges would, under the present system, get quickly over their work; but as a rule at exhibitions like the Royal English, the Highland Society, the West of England, and the Royal Irish, the stock in most of the classes

are so numerous, and so much on a par one with the other, that it takes the judges—if not for the first, at any rate for the second, third, and fourth places—a very considerable time, and no little discussion among themselves, to allot each animal its proper place. Long, therefore, before the judges could possibly discuss, as they now do the merits of the five or six animals remaining in the leet, and agree as to their relative positions, they would, far more harmoniously, and not unfrequently more correctly, put each animal into the proper place by the point system. It is true that even under that system a discussion might arise among the judges as to which of the animals was best in a particular point or group of points; but such a discussion could not occupy a fiftieth part of the time that one on the whole animal would do (when, as it now is, the three judges can argue round and round among themselves on the whole 40 points), and, if raised at all, would be decided at a glance, confined as the discussion must be to a single portion, and a small one of the animal. When judges are once accustomed to the system, and go steadily at their work, they would easily be able to point the four or five animals in each class in half an hour, or in three-quarters of an hour at most, and that, even if there were only one set of judges, would occupy them no more than six hours at the very outside. But supposing that each class, on an average, took as much as an hour (which it would never do), and that there was only one set of judges, they would be occupied for seven or eight hours; and even that could be given, as they could commence at eight in the morning and work till four in the afternoon, and although this would be a very long day's work, there are very few of the judges who would be unwilling to undertake it. There is, however, no necessity for thus begging the question, for the judging by points, with even a single set of judges, would never occupy anything like the time here supposed, and, if it did, the judges need not be overtaxed in the

least, as a second set could be easily appointed for the class.

With regard to the *third objection*—that the judges would dislike to judge by points. There are no doubt a good many first-class judges, who would at first, perhaps, object to judge by points. They would do so for several reasons. Some of them, and by far the larger number, would decline because they disliked to submit their decisions to the minute criticism which they imagine judging by points would arouse. Some again, and they are comparatively few, would object on account of the trouble the point system would entail. And a very few would do so, because they think that they would, by this mode of judging, give too much information, and make others as good judges as themselves.

With regard to the *first* of this class of objections, there is no doubt whatever but a very little experience would lead judges to alter their opinions. This is the experience of the writer. He has heard judges who were most reluctant to commence judging by points, and who had all but declined to act, declare, when they had finished their work, that they liked judging in that way very much, and would never do so in any other, if they had their choice. In fact, although the writer has seen a good deal of judging by points, he has never met with a good judge who tried this system, and did not approve of it. The reason is plain. A good judge would never make a mistake except by overlooking some point or quality which he ought to have observed. This he cannot possibly do in judging by points; for, as has been already noticed, he is point-blank asked, how the different animals stand in every point and quality they possess; and, as no point or quality can in this way escape his notice, he acquires a confidence in himself under this mode of judging, which he cannot feel under any other, and is thoroughly regardless of criticism, as he feels that he can scarcely make the slightest mistake.

As to the *second class of objections*, there are very few judges who, for the benefit of

breeders and the society, would not willingly take the trouble, and bestow the time required to judge by points, even although it should be found to be a very tedious and troublesome affair. It is, however, neither; for the judges would, after a little practice, quickly agree as to the number of marks to be allotted to the different exhibits, and the steward or member in attendance would enter the numbers in the award paper for them, along with any remarks they may make.

There are so very few judges who would decline for the *third and last reason* that their services can easily be dispensed with, and that objection therefore falls to the ground.

The following is submitted as a tentative scale of points for the cattle section, and the relative values which should be allotted to them; the aggregate number of marks for the values being taken at 1000.

I. QUALITY.

1. General Quality.

(1.)	{	General Style and Carriage .....	60	}	90
		Bone .....	20		
		Colour .....	10		
(2.)	{	Hair .....	30	}	170
		Handle .....	50		
		Evenness of Flesh and Fat.....	90		
					—260

2. Head.

(3.)	{	Muzzle .....	5	}	— 15
		Nostril .....	5		
		Jowl .....	5		
(4.)	{	Face, Eye, and Expression.....	30	}	— 65
		Horn .....	30		
		Ear.....	5		
					— 340

II. FORM.

1. Fore-quarter.

(5.)	{	Neck and Throat .....	40	}	75
		Breast.....	20		
		Brisket .....	15		
(6.)	{	Crops .....	10	}	40
		Shoulder ..	25		
		Fore-arm ..	5		
					— 40



(12.)	{	Clan .....	35	
	{	Fore ribs .....	45	
	{	Fore flanks .....	30	
			—110	
			—225	

## 2. Middle.

(13.)	{	Back .....	25	
	{	Back ribs .....	40	
	{	Belly .....	10	
			—75	
(14.)	{	Loan .....	45	
	{	Flank .....	45	
			—90	
			—165	

## 3. Hind-quarter.

(10.)	{	Hip or Hook .....	20	
	{	Rump .....	30	
	{	Tail and Set on .....	25	
			—75	
(11.)	{	Quarter .....	40	
	{	Thigh .....	20	
			—60	
(12.)	{	Twist .....	30	
	{	Testes or Udder .....	10	
			—40	
			—175	

## 4. Legs, &amp;c.

(13.)	{	Knee and Gaskin .....	20	
	{	Leg .....	10	
	{	Hoof .....	5	
			—35	
			—600	

## III. VIGOUR AND SIZE.

(14.)	{	Vigour .....	30	
	{	Size .....	30	
			—60	
			—1000	

The points here proposed are all positive, as low positive points indicate the position of an inferior exhibit just as well as, if not better than, negative; while it simplifies matters to have only the one description of points. Besides, it is less galling to exhibitors of inferior stock to have the position of their animals indicated by low positive points than by negative.

For convenience in dealing with the points, and in order to enable stock-owners and breeders to know the relative position of the various exhibits from the number of marks given them by the judges, the highest possible

aggregate number of points attainable should be fixed by the scale at either 100 or 1000; and there is no doubt but the latter would be the preferable aggregate, in order that the judges might have ample scope to mark the differences which exist in the same points in the different animals in a class. Where the 100 aggregate is used, a good many of the points must be as low as 3, 2, and even 1; and it can easily be seen that where the marks or values of the same points are to be given to all the exhibits, and there is only the range of a single number, or at most of two or three, it would be impossible to give each exhibit the correct number of marks which it deserves, for it would be found in practice that no two of them are exactly the same in any one point. Besides, the less judges are cramped in marking differences in the various points of the different exhibits, the more easily and correctly will their work be performed. It makes no difference to the judges whether the aggregate be 100 or 1000, as the one aggregate, except in the cases mentioned, is as easily worked as the other; but they will with the latter number require to keep in view the large numbers they are dealing with, and in marking the differences between the various exhibits, make these differences sufficiently wide.

In the way in which the foregoing scale has been drawn up, the judging might either be carried out—first, by the single points, of which there are 42, at the values given in the first column; or second, by the groups, as bracketed, of which there are 14, at the same values, as summed up and given in the second column; or third, by the seven subdivisions of "General Quality," "Head," "Fore-quarter," "Middle," "Hind Quarter," "Legs, &c.," and "Vigour and Size," at the values appearing in the third column.

Of the three ways here mentioned, the *first*, the single point system, would for breeding stock not only be the simplest, but also that by which the awards would be the most correct and afford the greatest amount of information; for instead of having to come to a

decision, as they would have to do in judging by groups with regard to two or three different points all differing to some extent in the different animals in the class, and thereby causing discussion and delay—the judges working under the single points, would only have to deal with *one* point at a time ; and having only the one question to decide, would be able to give their awards rapidly and correctly. In fact, judging by the single points is just carrying out the wise old “saw,” of doing only one thing at a time—the advantages of which are so well illustrated in the process of pin making.

The only objection worth considering, which has been taken to this mode of pointing is that it would occupy too much time to go through all the points in detail. Now, it may be that the judging would be more quickly carried out by taking the points in groups, and more quickly still as they have been arranged in sub-divisions ; but cases would frequently arise under both these modes of pointing, where the judges would differ as to the number of marks to be allotted to a group or sub-division, and there would then be considerable time spent in coming to a decision,—some of the judges upholding their opinions by referring to the superiority of a point in one animal, and some to a different point in another. Where again each point is considered singly, the judges satisfy themselves at a glance as to the positions which the different exhibits in the class hold with regard to it, and would seldom or never disagree as to the number of marks to be allotted to each of them, for the point under consideration. Upon the whole, therefore, although at first sight it may appear more tedious to judge by the single points, it would not be found in practice to be so ; and the other advantages, educational and otherwise, which would accrue under this mode of pointing, ought to give it the preference.

It is not likely, however, that the generality of judges would at first take this view of the matter ; for they would be almost certain to think that this mode of pointing would

occupy too much time, and entail too much trouble ; and would be likely to prefer taking the points in sub-divisions, as per Appendix C, rather than in groups, although of the two the groups would, as may be seen in Appendix A, not only afford the greatest amount of information, but would in practice prove the more workable. It would, therefore, be better in initiating the point system to commence by taking the points of breeding stock in sub-divisions ; and when the judges have had a little practice in working the points, and acquired the confidence, which they will soon be certain to feel in that mode of judging, the single points might be adopted.

For fat stock, again, it would always be sufficient to use the sub-divisions, and the form of an award paper for fat stock, with these headings, is shewn in Appendix D.

Should the sub-divisions be used, the judges, in case they should disagree as to which of the animals stood highest with regard to the value of all the points taken collectively in any of the sub-divisions, ought to be in a position to go into particulars, and ascertain the precise value of each point in the sub-division as possessed by each of the different exhibits then under consideration. They should, therefore, be supplied with blank sub-division award papers, of some such form as the following :—

SUB-DIVISION AWARD PAPER.  
SUB-DIVISION NO. I.

No. of Class.	No. of Exhibit.	General Style and Carriage.	Bone.	Colour.	Hair.	Handle.	Eyeness of Flesh and Fat.	Total.	Remarks.
		60	20	10	30	50	90	260	

Here the disagreement is supposed to occur in Sub-division No. I. Under the point system a very few minutes is quite sufficient to settle the matter, for when the points are taken separately, the question as to which



animal is best in the point under consideration is no sooner raised than it is decided—it being next to impossible for any disagreement to continue with respect to a single point; and when the values of the several points in the Sub-division are set down in the Award Paper for the four or five different animals in the class, and the totals summed up, the thing is settled, and the disagreement at an end.

5. *Impediments to adoption of point system, and how they are to be overcome.*—Although a clear and unassailable case is here made out in favour of the point system, there are but too good grounds for believing that considerable delay may still occur in its initiation, as there are many, though easily removable, impediments in the way of its adoption by the principal agricultural societies. To shew that this is the case, we will here briefly notice some of the more prominent of these impediments, and shew how they can be removed. They are,

1st. *The novelty of the point system.*—The effect of this impediment on all classes of the community, and especially on those interested in the alterations which the proposed system would entail, in delaying its introduction of all improvements, is too well known to be for a moment questioned. It is, however, one that will speedily disappear with the discussion of the subject, and its zealous advocates will require to see that its various advantages are kept continually and prominently before stockowners and the public.

2d. *Its apparent intricacy.*—Looking at the array of figures and the minuteness with which the judging is gone into, the point system, at first sight, appears complicated and difficult, and is certain to frighten all those breeders and judges—and they are the majority—who look but superficially into such matters. The intricacy, however, to a good judge, is only apparent; and the merest trial of the point system on a few head of his own or his neighbour's cattle would soon convince him that it is not only easily under-

stood, but can be readily and correctly applied.

3d. *The dislike, on the part of thorough judges, to go into details.*—A first-class judge, who very naturally prides himself on the quickness with which he can discern the good and bad qualities of an animal, and who does so at a glance, does not like to be obliged to go minutely over the last leet of exhibits in a class, and judge them point by point. He would be certain to think that he was, in this way, being sent back to the very ABC of his calling, and it is only natural that he should at first object to judge in any such fashion. When, however, he is made to understand the extent of the benefits he would confer on stockowners and the society requiring his services by judging in this way, there is not the least doubt but that, in nine cases out of ten, he would readily consent to do so.

4th. *The natural disinclination on the part of breeders and judges to study and master the principles and details of the system.*—The failing here noticed is common to the members of every calling or profession, but especially so to farmers and breeders, and this, no doubt, arises from the fact that their turn of mind is far more practical than theoretical. The same causes as would lead to removal of impediment No. 3, would lead to the removal of this; and

5th. *The want of information with respect to the advantages of the system.*—These advantages have not as yet been so fully brought under the notice of stock-owners and judges as they ought to have been. If one tithe of the advantages which are claimed for this system can be secured—and there is no doubt but that they can all be so—it is impossible to conceive that the impediments which now exist to its introduction can continue, for our judges are too large-minded, and have the good of the class to which they belong too much at heart, to allow their own prejudices—and the objections here noticed are little else—or even their own loss of time or inconvenience to stand in the way of such a valu-



able improvement in the present mode of judging.

Now although it is a fact that these impediments to the introduction of the point system exist, it will be seen from what has been said that they can one and all be easily overcome. If, therefore, the point system be practicable, and that has been fully established by actual experience in almost every country under the sun, the objections which have been noticed as now existing among breeders and judges to that system—ought not for a single moment to stand in the way of its adoption by the principal agricultural societies.

Further, without desiring to detract in the least from the acknowledged skill and ability of the judges at our great national shows, who would for such reasons as those now given object to judge by points, and fully acknowledging the pains and time they bestow in their endeavours to do equal justice to all the exhibitors, it is only right to remind your readers that there are many things judges would do, and many they would not do, if they were not bound by the regulations of the society for which they are acting, and that the chief rule of the action is not what they would like but what is practicable and what would be for the advantage of stockowners and the society. Looking therefore at the question as to the best mode of judging in this light, it is plain that that of judging by points is one of those things, and that as the point system would be highly advantageous in these respects, it ought to be adopted, although a majority of the judges might in the meantime prefer to judge as they do at present.

If this course were taken by the principal agricultural societies, the judges would soon master the details of the point system; and when once they did so, there cannot be a doubt but that they would prefer that mode of judging to any other.

6th. *An authoritative scale of points for guidance of judges and use of agricultural colleges.*—If, however, it should so happen that the principal agricultural societies resolve in the meantime not to adopt this system, they

should at any rate, if they are to aid at all in promoting the acquirement of a more general and sounder knowledge of the principal points of stock and their relative values, send out as here proposed tentative scales of points to the county and local agricultural associations for consideration and discussion by the members of these associations, with the view of fixing a general scale of points and values for the whole kingdom. The dissensions that would follow on the scale thus submitted would tend to the acquirement of much sounder views than now exist on those most important subjects; and, when a general and authoritative scale was agreed to, copies of it should be placed in the hands of the judges before they commence their work, with instructions that, although they were not required to judge by points, they should make their awards in accordance with the points and values set forth in these scales; and in this way correct and uniform awards would be secured to a very much greater extent than they now are.

Besides the benefits already noticed as arising from the adoption of a fixed and authoritative scale of points, another most important advantage would accrue. These scales of points and values would be received by all agricultural schools and colleges as authoritative statements, and would be taught as such to scholars and students. In this way the principal agricultural societies would furnish most valuable materials for the use of these schools and colleges to be turned by them to profitable account, and would thus carry out one of the most important objects for which they were formed.

### III.—MEASUREMENTS OF STOCK EXHIBITED.

I. *Three measurements to be taken by stewards and handed to judges.*—The present mode of judging might be improved in another respect.

A few of the more important measurements of the animals might be taken by the stewards or by some persons appointed by the Council—say by the judges of condition



hereafter proposed to be appointed—previous to the stock being brought into the ring; and the measurements given to the judges, along with the usual particulars as to the age, food, &c., of the exhibits. This suggestion is made on the ground that, as these measurements can, by using the tape, be ascertained with certainty, they ought to be treated as questions of fact, and not left to the opinions of the judges. It can easily be seen that these measurements would be of great assistance to the judges, and save them a great deal of time, whether the judging be carried out by points or not; for judges are almost certain to differ as to the height, length, or girth of many of the animals, and not unfrequently make mistakes with respect to them, which the use of the tape would enable them to avoid. The measurements which it is proposed to take are the following:—

- (1) The animal's height, measuring from the ground to the top of its crops.
- (2) The length from the crown of the shoulder-blade to the hindermost part of the rump; gaudiness, of course, being omitted.
- (3) The girth of the heart.

It would not occupy much time to make these measurements; and, as the owners would be aware that they would be taken, they would be careful to measure their animals before they left home. They would thus be in a position to check the stewards, and bring the matter before the committee, should any mistake occur.

Although, however, these measurements would be of very great assistance to the judges, there would still be plenty of scope for the exercise of their knowledge and skill; and it would, of course, be distinctly understood that the taking of them in no way interfered with the legitimate powers of the judges.

2. *Additional measurements of first-prize stock to be taken and recorded.*—Whether the stock are judged by points or not, it would be very useful as well as interesting, if, be-

sides the foregoing measurements, the following additional ones of all the first-prize animals were also taken and recorded, namely—

- (4) The length from the pole to the crown of the shoulder-blade.
- (5) The length from the point of the shoulder bone to the hindermost part of the thigh.
- (6) The width of breast, measuring from one shoulder point to the other.
- (7) The girth of the flank.
- (8) The width of the hips or huckles, measuring from one huckle to the other.
- (9) The length of quarter, measuring from the crown of the huckle to the true point of rump.
- (10) The girth of the forearm.
- (11) The girth of the leg immediately above the pastern.

Further, if the judging of stock is not to be carried out by points, it is suggested that the judges of the principal shows should be asked to give short general descriptions of the first prize animals, for the purpose of their being placed on record along with these measurements.

#### IV.—THE OVER-FEEDING OF BREEDING STOCK.

1. *The defect in the existing regulations.*—There is another defect, and a most serious one, in the present mode of judging, or rather, perhaps, more properly speaking, in the conduct of shows, which calls loudly for a remedy. I allude to the all but useless regulations now annually promulgated by the principal agricultural societies for preventing the shewing of overfed breeding stock, and the barefaced way in which these regulations are allowed to be evaded. It is notorious that, for years back breeding stock have been exhibited at all the principal shows, in high enough condition for stock competing in the fat cattle classes, and that they are brought out in this unnatural state at the risk of rendering them unfit to breed, and to the ruin of their constitutions and that of their progeny; and this, too, when the breeder is

but poorly able to stand the cost and expense of bringing the animals out in that condition. The over-feeding of breeding stock has become a serious national evil, and ought to be put down at all costs; for the injury is not confined to the stock of those who are inclined, and well able, to follow this ruinous practice; but it is, so to speak, highly infectious, and one that, if followed by only a few breeders, must be adopted by all who wish to exhibit at our great national shows. Indeed, hundreds of owners, although they are well aware that they are running very great risk of destroying the health and vigour of their breeding stock, deliberately overfeed them till they are in high condition, even for the shambles, knowing, as they do, that their herd would never obtain a name unless their stock are prize-takers, and that they must be overfed before they stand a chance in the show-yard. In other words, that if they are to make and maintain a name as breeders, they must, although they can but ill afford the expense, overfeed and destroy the vigour and stamina of their breeding stock, or give up keeping pure-bred stock altogether. There is no doubt whatever but that the majority of the ills to which the shorthorn is now so notoriously subject, is either directly or indirectly caused by the overfeeding of breeding stock for exhibition at our national shows.

2. *The remedy.*—As, therefore, the steps hitherto taken by the principal agricultural societies have proved ineffectual to put down this crying evil, it is high time that some other means should be tried; and it is recom-

mended that, instead of leaving it to the judges of the stock, as at present, to set aside those animals shewn in the breeding classes, which they consider too highly fed for breeding; and which in practice they never now do, *three* duly qualified judges of condition should be specially appointed, with absolute power to go through the breeding classes at the show, previous to the regular judges going to work, and unhesitatingly disqualify every animal which they consider to be in too high condition to breed healthy stock.

It may be that, under such a system, an injury might, at first at least, occasionally be done a breeder through some of his best stock, which are naturally high in condition, and always fat, being thrown out, but this would very seldom happen, and after a time, these judges of condition would have quite as little difficulty in arriving at sound decisions as to whether animals entered in the breeding classes were or were not overfed, as the ordinary judges now have in placing the animals in their classes in the positions to which they are entitled; for a judge of fat stock can, by handling a beast, tell at once in what stage of fattening it is; and there are many of our breeders thorough judges in this respect. But, supposing that an occasional mistake were to occur, and an injustice now and then be done, the evil arising in this way is not worth consideration, compared with the benefit which the proposed arrangement would be certain to confer, not only on the breeder, but on the nation at large; for there is no doubt but the evil, to which notice is here called, is a very serious national one.



SECTION II., CATTLE.—CLASS I. AGED SHORTHORN BULLS.

(6.)	(7.)	(8.)	(9.)	(10.)	(11.)	(12.)	(13.)	(14.)		
Crops ... 10	Chine ... 35	Back ... 25	Loins ... 45	Hip ... 20	Quarter ... 40	Twist ... 30	Knee, &c. ... 20	Vigour ... 30	Total	Award
Shoulder ... 25	Pare-ribs ... 45	Back-ribs ... 40	Flank ... 45	Rump ... 30	Thigh ... 20	Testes, &c. ... 10	Leg ... 10	Size ... 30		
Pare-ank ... 30	Pare-ank ... 30	Pare ... 10		Tail, &c. ... 25			Hoof ... 5			
40	110	75	90	75	60	40	35	60	1000	
25	85	60	70	65	45	25	30	50	785	3d.
30	90	70	85	55	50	35	25	55	820	2d.
35	100	55	85	70	55	30	20	55	870	1st.
20	95	65	60	60	40	20	25	45	750	H. C.
30	100	65	85	70	50	30	30	55	870	
25	85	70	60	55	55	35	25	50	800	
35	90	60	70	65	45	20	25	45	785	
20	95	65	85	60	40	25	20	55	795	
20	90	35	85	60	40	30	25	40	765	
35	85	60	75	70	55	35	30	50	735	
30	100	65	65	55	50	25	20	35	705	
25	95	70	60	60	45	20	15	55	775	

## SECTION II., CLASS —. SHORTHORN

[illegible]

Shewing the relative positions of the different Exhibits with respect to the several Points—the Exhibits with the highest number of marks being placed at the top of the column, and those with the lowest at the bottom.

SECTION II., CATTLE. CLASS —. FAT CATTLE (SHORTHORNS).

[illegible]



IMPORTS AND EXPORTS OF AGRICULTURAL COMMODITIES.

THE Board of Trade Returns for the month and ten months ended October have been issued. The number of live stock imported alike in the month and ten months was greater than in 1872, although not so large as in 1871. In the longer period to which we shall confine our calculations (making comparison only with the year 1872), the foreign cattle landed at our ports, putting oxen, bulls, and cows together, amounted to 131,915, in the previous year to 127,341. This year we paid, up to the end of October, £2,816,233, in the corresponding term of the previous year, £2,333,769. The prices per head remained relatively the same as they did in September, quality being taken into account. Of calves, we imported in the ten months 39,382, to compare with 30,826 in the like term of the former year. The cost of these youthful specimens of the bovine race was, in the period which the Returns embrace, £194,760, while last year the sum we paid was £103,977. Of sheep and lambs, the number we imported up to the end of October was 752,582, about 30,000 more than in the corresponding term of last year. We paid for them £1,584,739, in 1872 £1,465,147. This year they cost us, in round numbers, £2, 2s. per head, last year only £2. There appears to be a decided re-action taking place in the demand for live swine, the imports having risen from 14,890 in the ten months of last year to 63,185 in the corresponding period of the present. The value last year for these animals was £47,955, this year, £187,060, shewing a decline per head this year of about 5s., the price being £2, 19s. each as against £3, 4s. last. The total amount we disbursed to foreigners for live stock this year was £4,782,792, to contrast with £3,950,838.

Turning to dead meat, we find that our imports of bacon from abroad in the portion of

the year which has past, exceeded greatly those of 1872, amounting to no less than 2,312,760 cwt., as against 1,627,866, the expenditure being respectively £4,905,480 and £3,350,746. There was little difference in the price per cwt. this year and last. In both years it ranged some pence over £2 per cwt. For salted and fresh or slightly salted beef our disbursements were this year £424,416; last, £348,335. Hams this year cost us £472,636 as against £343,096. Other kinds of meat described as unenumerated, but which includes preserved, £777,029, to compare with £815,081. It may be noted that the taste for preserved meat is gradually declining. Pork salted and fresh was more in demand, our pockets this year being mulcted for this commodity to "the tune of" £479,956; during the same period of 1872 we paid £388,894. For poultry, game, rabbits, &c., our expenditure was £168,552, as against £140,617. It would seem, therefore, that instead of year by year, through good and more extended cultivation and better modes of feeding, getting out of the obligation to foreigners, we are very manifestly getting more and more dependent upon them. The sum this year for animal food alone we had to pay is £11,810,871, while in the corresponding term of last year our debt was only £9,337,607.

Looking next to dairy produce, we have to note that there is an increase of more than £500,000 in the expenditure for butter, viz., £5,674,983, as against £5,144,386. For cheese we paid £3,464,925, as against £2,592,504; and eggs as ever come quicker and faster upon us, the sum we paid for them up to the end of October, being £2,105,681, to compare with £1,545,938 in the corresponding term of 1872; in all for these necessaries of the breakfast and dinner table, we paid £11,255,589, in contrast with

£9,282,828 in 1872. For meat and dairy produce together, we have, in the ten months gone by, disbursed the enormous sum of £23,066,460, as against £18,620,435, a difference it will be seen of £4,446,025 against us this year. Surely with security of tenure, which would ensure the application of more capital to our own land, we might materially reduce this account.

Our imports of wheat are also much heavier than they were during the ten months of the preceding year. So likewise were those of oats and beans, but barley and Indian corn were less in demand, wheatmeal greatly more so, as the following tables will shew :—

## QUANTITIES.

	Ten Months ended Oct. 31, 1872. Cwt.	Ten Months ended Oct. 31, 1873. Cwt.
Wheat.		
Russia.....	14,688,056	8,033,848
Denmark .....	350,055	267,822
Germany .....	3,402,556	1,656,028
France .....	1,891,905	1,169,193
Austrian Territories...	42,232	29,730
Turkey, Wallachia, } and Moldavia .....	745,424	303,445
Egypt.....	1,980,440	1,187,755
United States .....	6,386,928	15,277,836
Chili .....	1,247,441	1,449,052
British North America	997,117	2,718,159
Other Countries .....	1,384,398	3,180,640
Total.....	33,116,552	35,273,508

## VALUE.

Russia .....	£8,664,235	£5,040,876
Denmark .....	237,240	180,854
Germany .....	2,303,333	1,179,421
France .....	1,220,019	746,892
Austrian Territories...	25,229	18,616
Turkey, Wallachia, } and Moldavia .....	400,138	178,077
Egypt.....	989,666	655,443
United States .....	4,122,296	9,925,082
Chili .....	824,831	906,818
British North America	657,306	1,793,193
Other Countries .....	925,249	2,163,599
Total.....	£20,369,542	£22,788,871

## QUANTITIES.

	Ten Months ended Oct. 31, 1872. Cwt.	Ten Months ended Oct. 31, 1873. Cwt.
Barley.....	10,921,911	7,686,086
Oats .....	10,026,597	10,128,497
Peas .....	994,485	1,033,432
Beans .....	2,534,376	2,505,364
Indian Corn or } Maize.....	20,553,505	16,634,758

## VALUE.

Barley .....	£4,358,738	£3,309,926
Oats .....	3,628,760	4,042,243
Peas .....	430,472	440,931
Beans .....	1,020,086	1,049,282
Indian Corn or } Maize.....	7,320,151	5,776,123

## QUANTITIES.

	Ten Months ended Oct. 31, 1872. Cwt.	Ten Months ended Oct. 31, 1873. Cwt.
Wheat Meal, and Flour.		
Germany .....	841,286	516,368
France .....	750,045	1,595,364
United States .....	456,941	1,147,164
British North America	239,201	373,763
Other Countries .....	763,852	1,526,436
Total .....	3,054,325	5,159,095

## VALUE.

Germany .....	£784,258	£509,265
France .....	674,645	1,522,433
United States .....	375,715	1,009,998
British North America	208,257	333,552
Other Countries .....	782,383	1,473,691
Total .....	£2,825,258	£4,848,939

It will be seen from these figures that the total paid this year for breadstuffs was £42,256,315, as against £38,552,907 in the corresponding term of last year. If, therefore, we add cost of corn food to animal and dairy produce, we find that this year already we have paid the foreigner the enormous sum of £65,322,755, upwards of £6,000,000 more than last, when our account was £59,173,342.

With regard to manurial substances there is a decline in the importation of bones, and a considerable augmentation in that of guano. In nitrate of soda also there is a perceptible



increase. There is little change to note in oilseed cakes.

The following table shews the imports of wool and the values :—

## QUANTITIES.

	Ten Months ended Oct. 31, 1872. lb.	Ten Months ended Oct. 31, 1873. lb.
Wool, Sheep, and Lambs.		
From Countries in Europe	33,234,910	28,305,701
„ British Possessions		
in South Africa	29,196,755	36,073,741
„ British India.....	16,892,194	17,341,665
„ Australia .....	166,213,543	181,058,275
„ Other Countries ...	1,396,426	1,096,375
Total.....	275,035,065	286,686,090

## VALUE.

From Countries in Europe	£1,892,998	£1,629,952
„ British Possessions		
in South Africa...	1,925,778	2,466,564
„ British India.....	750,661	787,456
„ Australia .....	10,362,254	11,483,139
„ Other Countries ...	1,396,426	1,096,375
Total.....	£16,328,117	£17,463,486

Our exports of home-grown produce are growing small by degrees, and beautifully

less. All that we received for butter was £217,850, and for cheese £64,789, in both cases less sums than last year. Our receipts for horses were also less, with higher individual prices. The total amount we received was £142,180. There was likewise a decrease in the exports of wool, but we obtained higher prices, as the annexed table exhibits.

## QUANTITIES.

	Ten Months ended Oct. 31, 1872. lb.	Ten Months ended Oct. 31, 1873. lb.
Wool, Sheep, and Lambs.		
To Germany.....	1,551,543	2,413,850
„ Belgium .....	1,037,251	926,343
„ France .....	1,899,592	121,739
„ United States.....	1,773,251	760,461
„ Other Countries.....	960,887	720,707
Total.....	6,222,524	5,943,100

## VALUE.

To Germany .....	£128,727	£227,677
„ Belgium .....	93,677	78,992
„ France .....	82,389	96,469
„ United States .....	124,212	58,525
„ Other Countries .....	89,730	61,419
Total .....	£518,735	£523,082

## “PATRONS OF HUSBANDRY.”

THE term “Grange,” as applied to an association of men and women of any special class, is peculiarly American, and its meaning is not in any way elucidated by a generally interesting paper which appears in the “Cornhill Magazine.” A “Grange” is simply a local lodge of a wide-spreading Farmers’ Union, the initiatory steps for the formation of which took effect six years ago, and which now extends its organization throughout twenty States and in seven districts of Canada. There are, however, *Granges and Granges*. The farmers and horticulturists of a given district form a Grange. They meet in secret session to debate and determine every question of a public nature, which affects their class interest. They erect

halls in which to assemble, and provide unfailing social attractions, means of self-culture, and entertainment to preclude the thinning of their ranks. They eschew religion and politics as being of themselves grounds of divergence. At the same time they adopt a ritual after the manner of the Freemasons, and they have four degrees of membership, each with its separate passwords. An untiring propagandism, carried on by, or under the superintendence of Mr O. H. Kelley, the Secretary of the National Grange, has had the effect of instituting large numbers of these local organizations, which have been grouped for representation in State Granges; and these again choose deputies to the National Grange, whose head-quarters are at Washington.



In the American Union the State organizations exist in full official panoply in Alabama, Arkansas, California, the two Carolinas, Georgia, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Ohio, Oregon, Tennessee, Vermont, and Wisconsin. But the numbers and power of the Order are rapidly increasing; seldom does a day pass on which several additional Granges are not constituted: New Jersey and other States are in process of subjugation; and so universal is the development of the scheme that the Patrons of Husbandry (the appropriate designation of the Order) are by far the most influential and united of all associations of the American people.

The primary aim of the Patrons of Husbandry was, and is, the break-up of the Railway Rings which, of late years, have controlled the legislature, the courts, and the world of finance. Railroads are essential to the progress of agriculture in a degree which it is not easy to convey to English minds. Markets are widely scattered in the great corn-growing areas; stations and depots are separated by distances of scores, and in some cases, hundreds of miles. Nowhere is there any correspondent to the marvellous network of interlacing lines to which we are accustomed; and as sparse population and the lack of highways are invariably found together, it follows that, for the transit both of produce and of passengers, the iron roads possess an entire monopoly.

In America, Rings are met by Rings. The Railroad Rings were met by Farmers' Rings. Some years were spent in the preliminary organization of the latter; but no time was idly wasted, seeing that before a blow could be struck with effect, every contingency must be provided for. A strike against the roads would be certain to collapse, with ruin to its promoters, unless new markets were first opened up for the sale of farm produce absolutely independent of railway transit. Equally important was it to the farming interest that country and town should be brought into direct relations for the purchase and sale of machinery and implements, the

cost of which was ruinously enhanced by the intervention of an army of agents—many of them on friendly terms with the Railroad Rings, and not a few of them of the capitalist class, consuming and not producing. So then the Granges determined to establish a species of co-operation, freeing themselves from that bondage to the monied class which had so long galled them.

The plan of action thus matured was developed recently, with such results as startled the community. The judicial elections in several of the States were effectually controlled by the Patrons of Husbandry. Wealth had lost its wonted power, and every candidate who seemed to favour the interest of capital as against the interest of agriculture was marked for ignominious defeat. With notes of triumph still sounding, the Granges next moved compactly upon the railroads, to compel a general reduction of their tariffs by 50 per cent. In this movement the members of the Order are likely, when the facts are fully before the English people, to meet with much sympathy. To such a pass had matters come, that the cash produce of the crops was eaten up by the costs of transit: costs increased to pay dividends on paper shares that were about as genuine as a forged currency. Local pressure would doubtless have failed, and the united action of the Order of Patrons both in the States and in Canada failed to win at once the concession that was demanded. But, meanwhile, the mileage expenses of a train were ascertained from a couple of English Companies, in default of any information of the kind being procurable in America, and these shewed that a fair dividend upon genuine stock could well be paid from the traffic receipts of American lines, if the rates were reduced one half. The pressure was maintained, and began to tell upon the resources of the capitalists, who, falling back upon the banks, which had been thriving upon bogus securities, brought them down with a crash too recent to have been forgotten: and in this action of the Order of Patrons lies the secret of the late crisis.



## PEDIGREE CORN.

By Professor BUCKMAN.

THE pedigrees of animals have been handed down to us for very many years, and the history of shorthorn stock—to say nothing of other breeds—sufficiently points to the fact that some induced variations are handed down from remote periods, and each creature, so to speak, has the marks upon it of its own pedigree. Pedigree stock has the highest capabilities; varying, it is true, in this respect, but still the marks of descent are as patent to the initiated as are those of the particular sort of breed, and these marks are so constant as to be perpetuated from age to age.

Now, though animals are confessedly large creatures, and our crop plants small, yet the interests involved in the latter are even greater than those of the former, and hence it is equally important that these two should be educated, so to speak, to their highest capabilities; we therefore address a few lines to our readers on pedigree plants, especially in grain-producing species. Nurserymen have long known the facts connected with the production of the most approved strains of fruit and flowers, and have even acted upon the plan of preserving particular seeds in order to produce some of their best and most improved strains; but until lately the farmer has been slow to recognize the fact that quality of seed has a great deal to do with his results, much less that a seed could be arrived at of greater size, weight, and value, and tending to a larger crop with but thin sowing, as the result of what a stock-breeder would call judgment in selection. That this is so has been fully determined by various experiments on plants in this direction, but it is to Captain Hallett that we owe a heavy debt of gratitude for having shown the matter in its clearest light, not only in a theoretical,

but in a practical point of view—so that Hallett's pedigree grain has become established in the home and foreign seed markets.

Now, as we had grown some of Captain Hallett's seed with the best results, we determined the first time we journeyed to Brighton to give him a call; and, curiously enough, before knowing his farm, on taking a walk to the Downs in July of this year, we saw on either side of our path some fields of barley, which were recognized as the Pedigree Chevalier. The crop was very heavy, and the ears seemed to average over thirty seeds to each. The plants had stood out so enormously as to make it a very thick crop indeed, though, on tracing it to the ground, it was seen to have been sown very thinly. Well, on making inquiry, we found this crop belonged to Capt. Hallett, and, as his house was not far off, it was not long before we were enjoying a much desired ramble over the farm with the worthy proprietor himself. We should say that the farm is peculiarly a chalk-down one; its soil is of medium quality and capabilities; it is open down without fences, and very much exposed; and yet here were the largest crops of the finest grain of both barley and wheat that we have seen this year. Indeed, we then saw the following postulates verified, which we now quote from a paper read by F. F. Hallett, F.L.S., of Brighton, before the British Association for the Advancement of Science, at Exeter, August 19, 1869, in Section D, Zoology and Botany, on the Law of the Development of Cereals:—

“1. Every fully developed plant, whether of wheat, oats, or barley, presents an ear superior in productive power to any of the rest on that plant. 2. Every such plant contains one grain, which, upon trial, proves more productive than any other. 3. The best

grain in a given plant is found in its best ear. 4. The superior vigour of this grain is transmissible in different degrees to its progeny. 5. By repeated careful selection, the superiority is accumulated. 6. The improvement, which is at first rapid, gradually, after a long series of years, is diminished in amount, and eventually so far arrested that, practically speaking, a limit to improvement in the desired quality is reached. 7. By still continuing to select, the improvement is maintained, and practically a fixed type is the result.

We further add an illustration of the value of selection:—"A plant of this barley, grown in 1869 from a single grain, consisted of fifty ears. The record against one of these, No. VIII., is an extraordinary ear; all of its grains are short, plump, thin-skinned, and beautiful, while there is a general tendency in all the other ears to produced elongated grains of not so good a colour, and with thicker skins. Of these fifty ears the grains from each of the best ten were planted in a separate division, while the collected grains from all the remaining forty ears occupied an eleventh division. The grains of each division were again divided into two classes, making in all twenty-two divisions, and a specimen ear and sample of the produce of each of these were arranged side by side, so that all could be seen at a glance. An eminent maltster could scarcely believe that all the grains came from one grain in the previous year, and at once selected as the best that from Class I. grains of No. VIII. ear, the one which had shewn such marked superiority the year before. That the maltster was right the following results shew. All the plants were taken up with their roots at the same time, labelled, and locked in metal cases.

Parent grown in 1862.		Produce 1863.	
Number of Ear.	Class of Grains.	Description of Sample.	Weight per bushel, lb.
No. VIII. ....	Class I. ....	Just as grown..	56.32
All the other ears .....	Class II. ....	Ditto .....	54.20 }
	Class III. ....	Ditto .....	52.50 }

"Shewing a superiority of nearly 3 lb. weight per bushel in the produce of No. VIII. ear\* over that of all the other ears taken collectively."

How far the results as here intimated are verified by actual facts, we shall leave our own observations to decide.

Our visit was made just as the corn was ripening for the sickle; indeed, harvest had already commenced. Both the wheats and barleys presented a tall and heavy crop when looked at from above, but the individual plants were at such a distance from each other as to strike one with astonishment. But the real heaviness of the crop was soon accounted for when it was found that both wheat and barley had stooled from a single seed into from twenty to over forty straws—these latter, too, all with long, full ears, no bee wheat and no short barley ears.

As we were curious upon this point, we were allowed to take the first root both of wheat and barley that came to hand, and we now give the following details connected therewith. The wheat was Hallett's Pedigree English Red, the barley Hallett's Pedigree Chevalier.

Details of Hallett's wheat:—One root contained thirty-three ears; three of these yielded 180 grains of head and three grains of tail corn, the average length of ear being 5 in. The corn from the three ears weighed 154 grains.

Details of the same sort grown on a farm on the opposite side of the road:—An average root contained three ears; these three ears yielded 100 grains of head and ten grains of tail corn; the average length of the best ears, 3 in. The weight from three ears was 70 grains.

Details of Hallett's pedigree barley:—The root we took had twenty-eight ears of corn;\* the average yield being thirty grains; the average length of ear from the base of the

\* From this No. VIII. ear all the pedigree barley is directly descended, with the subsequent annual re-selection.



bottom berry to the apex of the top one being  $4\frac{3}{4}$  in.

Details of an ordinary barley crop:—Four ears of corn to each root; the average yield per ear twenty-two grains; average length of ear, measured as above, 3 in.

The barley was not quite ripe, so we do not contrast the grain; but, from experience, we are enabled to report a decided increase of weight per bushel, and what is still more important, the tail, in proportion to head corn which we have separated with the body, is as 2 per cent. compared with from 8 to 13 per cent,

From these details, then, there can be no doubt that it is possible to improve grain in all its essential particulars, as the result of selection; but at the same time we would say that the mode of cultivation has also great influence on the results—a subject on which we shall offer a few remarks in a subsequent paper.

We would remark, in conclusion, that oats, like barley and wheat, and even potatoes, are being educated for pedigree stock; but from our notes, we do not consider the former grain so much improved in weight as the latter.

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### PICKING AND DRESSING HOPS.

THE season for the picking and dressing of hops has just past, but we trust that the following remarks, although they do come from an American source, may not be unacceptable to our readers. We have derived, in the way of agricultural implements, many wrinkles from our trans-Atlantic cousins, why not also in hop gathering and management thereafter.

In the first place, we are told by the *Rural New Yorker*, no grower should raise more hops than he has kiln or kilns with capacity to dry within eight or twelve hours after picking; for instance, hops picked to-day should be cured or taken off of kiln as soon as possible in the morning, for the kiln to cool off, and the hops picked in the forenoon to-morrow, if not sufficient for kiln, should be spread on kiln and lay until night, when the balance should be put on and a fire started immediately, and a good, strong heat kept up from four to six hours, the exact time depending somewhat on the height of the kiln and the thickness of the hops spread on, which never should be more than from 12 to 15 inches. The longer the hops hang on the poles, and the nearer they come to maturity, the less heat and time it takes to cure them.

The kiln should have plenty of air below, not one-half of them having one-half enough; also draught enough above to let the steam escape.

Hops never should be turned on the kiln. Some time, or any time when they are dried, so the hops on the top open and the steam has all escaped it will do to go through them with a scraper or the feet, and mix them. One great trouble is, most of the hops are overdried, which injures the flavour. This is done by keeping the heat up after the hops are nearly dried through. A sack or bag of hops, if ten-bushel boxes, weighs from 45 to 55 pounds, which depends on the length of time the picker is picking the same, and something on the weather, as hops wilt and settle more in warm days than in cool ones, and weigh from 14 to 17 lb. when cured, and sometimes, if picked clean, 20 lb. to the box after being cured. This is to shew you what moisture has to be taken out of a box of green hops, which, I suppose must escape in the steam.

Diseased or mouldy hops require more heat and more close attention than a sound hop; and often hops diseased will be very bad at the bottom of the poles, and some at

top of poles sound, as was my friend Dorr Russell's, in 1867. I found by taking them off the kiln hot, that the diseased hops, which had begun decomposing when picked, almost all break up, leaving sound hops to shew—as when examined by dealers they always open a whole hop.

Now as to using brimstone: As a general thing, there is too much used. Of course it depends on what condition the hops come off the poles; there is a kind of rust on hops that brimstone will help, and there is a sort of canker comes on hops that brimstone will not affect; and there is one kind of a green hop that may be benefited by using brimstone, making them a straw colour: and there is another kind of green hop it had better be kept off entirely. If the dryer be a good judge, he will make the proper distinction.

One thing more: Growers often pick hops too soon, and then brimstone too strong, to make them look as if they had come to maturity. I have always used more or less brimstone, still I hold that no hop has that fine, sweet flavour that a really good judge can detect, when brimstone has been used. My mode of using it is to use a little after the first fire, if they need it, for 3 or 4 hours, and by no means use too much at a time, but often, and in small quantities, as the hops may require. Still, I think, as a general thing, hops would suit brewers better, if there was never another pound of brimstone used.

I would strongly urge upon growers under no circumstances to pick their hops too early. Among other objections, the vines are, by premature picking of the hops, greatly damaged. And when they are picked, do not let one picker stand all day filling a box, nor should they be left in the sack. In either case, the hops often heat, and are damaged.

I will give you the principal reasons why hops should be treated as I say:—

1. They should be spread on the kiln soon after being picked, for the reason they will

heat in the sack within 3 to 5 hours after being picked. The greener hops, or the first picked, if the day be warm, will heat within three hours, or, if diseased or mouldy, they will heat sooner, and after being heated in the sack, never can be brought back to the original flavour they would possess if dried as soon as picked, or spread on the kiln, where they will keep cool until cured, or a fire started.

2. There should be a fire started as soon as possible after they are on the kiln, and keep a good strong heat from 4 to 6 hours, and then a slow, gradual heat until they are seen to open on the top of the kiln. The result would be, if the fire were allowed to go down after the heat has been up, say two hours, the hops would be full of steam, which would settle back, and the hops would be a leaden, dull colour, and also affect the flavour.

3. There cannot be more than from 12 to 15 inches well cured on any kiln at a time. The result is, you will heat or overdry the bottom ones before you dry the top ones, unless you should take from 15 to 20 hours to cure the kiln, and even then they would sour.

4. There should be plenty of air below the stoves. Here is where most hop dryers fail. When the hops lie on the cloth 12 to 15 inches thick, it requires a strong current of cold air to drive the hot air through them; and the result is, if you do not have it, the hops will have a dull, wilted colour, and also affect the flavour.

5. A kiln of hops never should be turned. The result of turning them when about one-half or two-thirds dried through is this: The damp hops, which are on the top, are, of course, full of steam, and heavier than when put on the kiln, are either mixed with the dry ones, or, if turned with a shovel, are put directly under the dry ones—consequently, the steam having to pass through the dry hops to escape, gives them a bad, dull colour.

6. I will add they should be spread on the



kiln as evenly as possible, so that they will all dry about the same time ; and, as I have mentioned, after these are seen to open on the top of the kiln, then make a slow fire and go through them with the feet, and they will be dry enough, or three-fourths of the stems will be cured down, and the remaining

one-fourth will cure in the pile, and be fully cured. They should lay from 15 to 20 days before being pressed. But if it should be necessary to press immediately, two slow fires should be made after mixing with feet, with care not to over-heat them, as the heat passes through the dry hops very quickly.

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### ADVANTAGES OF AUTUMN PLOUGHING.

THE benefits of autumn ploughing necessarily depend somewhat upon the winter that follows. If the land be ploughed rather early, so that the autumn rains have a chance to pelt it, and the snows of winter come heavy and lie long, the land will become packed ; and, unless very porous, or charged with sand or humus, will require re-ploughing in the spring. If the soil be composed largely of clay, so as to retain water somewhat late, it will put back the ploughing too far for spring sowing, which should, in the main, be done as early as possible. Hence it is best to plough a clay soil late, and leave as rough as possible, so that the air and the frost may have full play. But an objection introduces itself here. Clay land should never be ploughed wet, and to plough it late makes the chances against it of ploughing it dry enough, as the land late in the fall is usually wet ; there are exceptions, but we cannot afford to trust to exceptions. I know, says a correspondent of the *Albany Country Gentleman*, it is held that the frost will ameliorate the evil ; and so it will to a certain extent. But it will not, in one season, reduce a harsh, lumpy soil to a mellow condition. Every farmer in the possession of wet clay soil must know that lumps will continue for years, even on grass lands, interfering often with the mower. But there is this with late ploughing of clay land, that if wet, it is not then in a harsh or lumpy condition. The frost then or soon entering it, as it will in late ploughing,

there is no chance for the sun and wind to dry it as in summer. If the winter be an open one—if further, there is an alternation of freezing and thawing, as is sometimes the case—I have known good results from such late ploughing. Indeed, in such cases (favouring winters) all soils will be benefited. Sometimes late ploughing is covered at once by heavy snows, continued during the winter or the greater part, the ground not frozen at all, but packed and kept wet. If the snow continue till late in the spring, the land will be in the worst possible condition, necessitating late work with it. It is there, packed and hard, and the harrow makes little impression upon it. The cultivator only breaks it into lumps—the plough into greater lumps for the harrow to reduce to smaller. I have seen frequent cases of the kind ; we have had them ourselves. There is little grown upon such a soil. And to reduce it with the clod-crusher only levels the surface, making little brick-bats of the big ones.

From this it will be seen how much is depending upon the winter. We cannot afford to trust to chance. What then are we to do ? It would be clear enough to answer, were the land drained. Then it would be best to plough, and plough late, not in a rain or immediately after it, but giving the soil a chance to pass off its surplus water, which it will do in a day or two. It will then come up, not packed, not wet, not greasy, but in a condition more or less porous and crumbling.



The packing snows will not deprive it wholly of its porosity ; so the water is discharged as formed, and the mellow condition more or less retained. Such land can be ploughed early, or sown early, in the spring. It is the drainage that is the important thing here. It prepares the land, on an average, about two weeks earlier for work. I am in favour of ploughing land late in the fall, if it can be done. I prefer it for these reasons among others :—That the soil will be less packed ; no grass or weeds will have a chance to start ; it will throw up to the frost animal and vegetable life, and enable the elements to act more effectually upon the loose, thrown-up earth ; it interferes less with other work. Some of our best success has been with land ploughed in winter after a thaw, the soil sufficiently dried to admit it. It was somewhat like very early spring ploughing, with the benefits of winter added.

Where it is wished to manure land, it is best to plough a little earlier, so as to give chance to apply the manure, which should be done immediately after ploughing, or when the ground is dry enough to admit it. Spread from the cart, and spread evenly.

And now it is still to be answered what is to be done with our hard, undrained clay soil—the worst soil we can have. If so hard and packed that it will not take in any water, plough late—in winter, if it can be done, and has been neglected in the fall. Set up the furrows as much as can be, so as to give it some chance for drainage and access by the elements. In the spring, with the first chance for mellow soil, put in the crop. There will be sufficient loose ground to make a seed bed. But why give directions for such land save a thorough renovation ? It seldom pays for the trouble of working it.

But there is a still worse case. It is where there is a large proportion of clay mixed with slate, both in a somewhat pulverized state—as we find in some drift soil—resting on an impervious bottom. This, when ploughed late, often turns up mud, and by the time it is dry in spring is a hard solid

mass, fit only to leave as it is, so far as a spring crop is concerned. Such land it is in general better to plough early in the fall, or when dry enough. Could it be relied upon to plough it dry enough at the opening of the winter, this would be the time for it. In no case plough it when wet, as this is to make mud of it. When dry it would come up mellow. Could it be trusted with spring ploughing, it were better to defer ploughing till then. It should be made a rule with this soil never to plough it when wet, or anything approaching it. If dusty, then is the best time to work it.

When it is wished to bring up raw soil, the fall is a good time to do it, and the earlier the ploughing is done the better, even if it extends into August, for it is the heat and the warm rains that have the most rapid effect in reducing such crude material. Then, followed by the frost, to divide and mellow further, there will be a chance for a crop the following summer ; else, if ploughed late in the fall, or not until spring, the raw, unchanged material will defeat the purposes of a crop that season. Where there is much of this soil brought up, the failure will be complete. This is in our own experience, and I have seen it repeatedly elsewhere. In the spring then, soil should never be deepened, and it should never be deepened at once to a great extent, whether in the fall, summer, or any other time. Of this we have had on our own land the most bitter experience. It will take years to prepare the raw mass for the growing of crops, whether the soil be worked during the time or not ; but working hastens the period—nothing so good as to fallow the land.

Where the land breaks up in pieces, the fall rains and winter weather will act favourably upon it, and in connexion with the harrow in the spring, will reduce it to a tolerable seed bed, and in some cases a level, mellow surface. With respect to a rich, mellow, well-drained soil, it may be ploughed at any time, always excepting the wet, in which case no soil should be worked.—*F. G.*



## The Garden.

### THE PERSIAN CYCLAMEN (*Cyclamen persicum*).

OF the many winter and spring blooming plants that we cultivate for greenhouse or home decoration, there are few more interesting or useful than the Cyclamen. Its remarkably neat habit of growth, and elegantly marbled or netted foliage, combined with the beautiful and rather odd-looking flowers, render it peculiarly attractive, while its delightful fragrance and easy management give it additional claims to our attention. Many have imagined that it requires some years to get blooming plants from seed, and have thus been deterred from attempting their

apart into boxes until spring, when they are potted into small pots singly, in rather open, loamy soil, a liberal addition of well-rotted manure and sand being used. By the 1st of June they are ready for larger pots, and are then placed in a frame and shaded during the day, by the glass being whitewashed, the sash being taken off at night to give them all the benefit of the cooling dews. They do not grow much during the hot weather, but as soon as the nights begin to lengthen and grow cooler the plants get fresh vigour, and by the end of September they are ready to be placed in the pots in which they are to flower. After



The Persian Cyclamen—Natural size.



*Cyclamen persicum grandiflorum*.

management ; indeed, I was recently asked by a florist of many years' standing, if our plants were three or four years from seed ; when, in fact, it is little over a year since the seed was sown. We sow the seed in November, and as soon as the young plants are fit to handle, transplant them about 1 inch

potting, they are placed in a cool, airy house, and receive all the air that can safely be given to them during the winter months. With the beginning of November the earliest and strongest begin to bloom ; others follow in rapid succession, and as the days begin to



lengthen, they are a blaze of beauty, their many shades of colour and delightful fragrance calling forth the admiration of every one, old plants is to plunge the pots in a shady border out-of-doors during summer, and about September, as soon as they begin to



*Croton limbatum.*

Each plant ought now to have from twelve to thirty flowers expanded.

Probably the best method of treating the

make new leaves, take them up, and shaking away the greater part of the old soil, re-pot them, and treat them as recommended above.



I would add that there are few better plants for parlour decoration than the Persian Cyclamen. It is especially a window plant, and if kept cool, say at a night temperature of 40 deg., and the leaves washed once a week, it will grow and flourish almost as well as in a greenhouse, standing the variations of temperature as well as the pet Hyacinth, Crocus, Snow-drop, or Chinese Primrose. — *W. J. Davidson.*

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*CROTON LIMBATUM.*

**A**MONG new plants *Croton limbatum* takes a very distinguished place. It is not only in respect of its colour and spotting of leaves, but of its free growth that it is conspicuous. And while we compliment it upon its growth and colouring, we find it to be of desirable habit, requiring pinching as it grows; but with pinching it will soon form itself into a desirable specimen. It is from the East Indies. For an illustration we are again indebted to Mr Bull, who thus describes it in his catalogue:—

A very free-growing and very pretty dwarf-habited dense-growing *Croton*, imported from the East Indies. The leaves are linear-lanceolate, about 7 inches long, and  $1\frac{1}{4}$  inch in

breadth, very densely set upon the branches, of a remarkably deep green, with a bright orange mid-rib, and narrow reddish orange margin. The colouring of the mid-rib is sometimes confined to the costa, and sometimes spreads in a narrow line on each side of it; the marginal colouring also forms a narrow continuous line on the extreme edge of the leaf. Wherever the *Croton* has been exhibited, it has been an object of great admiration, the red and the orange and the green being so marked in their tone of distinction as to command almost universal suffrage among growers. By ordinary care, any one can soon get up a plant of the robust variety.

## The Veterinarian.

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### *DISEASES INCIDENTAL TO PARTURITION IN COWS.*

#### DROPPING.

**T**HERE are several conditions which give rise to an inability to stand, or rise when lying, but which have been so commonly confounded with each other, that whenever a cow is said to have dropped at or about the time of calving, but one view is understood or expressed. She is said to have "milk fever," which term is also in general use with, and understood to be the same, as "the drop," "loin fallen," &c. However, by a study of causes as well as the nature and signs of the maladies themselves, veterinary practitioners are now able to distinguish three separate forms of disease which produce dropping at the time of parturition, each of which we will attempt to describe.

#### NERVOUS DEBILITY.

The first we recognize by this title, for want of a better, yet it is very expressive of the nature of the affection. The cow most likely to be affected is that which has not been very well kept, or, from other causes, is not in very strong and vigorous condition at the time of calving. We have frequently witnessed this form of disease in cows travelled about by dealers, and those farmers who keep theirs late on poor pastures without additional food, as hay or cake, in sufficient quantity, when, at the same time, they have milked largely and almost up to the time of calving. Previous diseases, as diarrhœa, debilitating colds, &c., overdriving, and all causes which tend to lower and reduce the vital powers are the means by which this affection is brought about.

Nervous debility is apparently due to functional disorder alone, as the usual course

which it pursues, and almost entire absence of fatal tendency indicates. Cows that have had a bad time of calving are not necessarily victims, indeed, such are very rarely affected with this form of the drop. There is no fever, insensibility, nor wildness in the look of the animal, but the creature rests well in a natural position, and is as lively and attentive to all going on around as she can well be. The bag is soft. Milk is present in fair, or even large quantity, and readily withdrawn; the appetite is seldom affected, but constipation may be present to a slight extent, and the rumen is generally full, but not impacted. The pulse is tolerably full and soft, but the circulation is slower and weaker than usual, and the skin is cold. The ears and extremities also indicate the same want of tone and activity in the circulation. Large-bodied cows, and especially those that are heavy milkers, whose internal organs are also large, making a great demand upon the nervous system, together with those breeding from large bulls, are likely to be seized, if the general condition is suffered to fall below a requisite standard; hence we find this affection give way, on well-managed farms, to others, which we have yet to describe, having very fatal tendencies. Peculiarity of season, as long-continued wet and cold weather, may influence the production of the complaint, by causing a scarcity of grass, and thus the body deprived of a proper quantity of food, falls below the normal tone, and temperature is deficient; and these, in the end, impair the functions of assimilation, nutrition, and growth. A cow, when in calf, requires a very large increase of food, in order to provide suitable nourishment to the young animal;



but if this be not supplied, her own body has, in a great measure, to supply it, and consequently, we find she becomes poor and weak, while the calf may be born healthy and well nourished, if the state of affairs be not allowed to go too far.

There is yet one particular which the owner may wisely bear in mind as a remarkable feature of the disease, and by which he may readily distinguish it from all other affections happening at parturition. The cow can suckle the calf well, and cannot bear it out of her sight, and all general appearances favour the assumption that nothing at all is the matter with her except her inability to rise. In other forms of dropping after calving, as we shall hereafter point out, no such peculiarity as this exists. It is therefore valuable as a distinctive sign of parturient nervous debility.

We have now to notice the means usually employed in order to bring about a return of that nervous tone and muscular power. If the stomach be heavily loaded, and more especially if the bowels be also constipated, it is necessary to give a little opening medicine, but active purgation must be avoided, or the animal may be rendered weaker than she is. Let us suppose for an ordinary dose, we should give the cow  $1\frac{1}{2}$  lb. of Epsom or Glauber salts. In the case we are describing we should recommend that only 1 lb. be given, that is, reducing the ordinary dose one-third. With this should be combined 2 ounces of ground ginger, and the same quantity of ground gentian or colombo, and 2 pounds of treacle, the whole being mixed with 2 quarts of warm water, having a handful of flour thrown into it and well stirred.

In drenching the animal care must be exercised. The head must not be held too high; the fluid must not be poured too rapidly or in large quantity down the mouth. Do not hold the tongue, but allow it free liberty, and give her ample time to swallow each draught before another is administered. The next thing to be done is to give an injection of warm soap and water. It should not be

higher than 100 deg. Fah., and not more than 1 quart given at once, but repeated every two or three hours until the bowels are proved to be responding. Small clysters are best, as they do not promote discomfort as large quantities of fluids are apt to do.

Further medicines are not required for at least eight hours, therefore we would recommend that the calf be allowed to draw the udder regularly, or, if inconvenient, milking by hand must be resorted to frequently, say four or five times in the day. This is also important, as nothing disturbs the cow so much as having milk, and being unable to discharge it after having accumulated. In the meantime, also, warm rugs may be put over her back, or in their absence dry sacks will answer the same purpose, and these should extend upwards over the neck; afterwards straw may be heaped over her, and in this way resting with only the head visible she will become warm and comfortable. Some practitioners follow the plan of passing heated smoothing irons over a cloth placed longitudinally on the spine. We have tried this also with marked benefit, and gladly recommend it to our readers. The object is to promote warmth and circulation in the neighbourhood of the spine, and so nourish the nervous system in that locality.

Subsequent medicines are sweet spirits of nitre, 1 ounce; ground gentian, ginger, or colombo, of each 1 ounce; tepid water, 1 pint. This may be given three or four times a day. The food must be light and nutritious, consisting of scalded oats or barley, malt mashes, green clover, grass, roots, &c., as they can be obtained, and these must be supplied frequently and in small quantities at once. If she refuse any portion, it should be taken from her sight and not offered to her a second time.

Cows in this affection recover at variable times. In some cases they are down but a few hours, but if remedial measures are delayed, a day or two may elapse before the cow rises. As in all other complaints, early treatment in this is most successful.



## PUERPERAL FEVER.

The second form of disease which occasions dropping at calving is named "puerperal fever;" it is the true "milk fever" of cows, and is likewise known as "puerperal peritonitis," and "metro-peritonitis," terms which are of greater use to the medical man than to the proprietor of stock. We shall continue to use the term "milk fever" throughout this article, not only for the sake of ease and simplicity in description, but also for clearly defining the differences between this and other forms of dropping at calving.

Milk fever is generally seen among cows that have had a difficult time in calving. When the calf is large, pains are strong, much force used, and many hours are occupied in delivery. During such cases there is much opportunity for damage in the walls of the womb by extraordinary efforts to expel the calf; inflammation of the blood-vessels follows—phlebitis, together with the various tissues of the organ, which is of the nature of erysipelas. The covering of the womb—peritoneum, an extension of the same membrane which lines the abdomen throughout, as well as forms a complete investment for the intestines and all other organs of the abdomen, likewise partakes of the same disease, and this extends, more or less, frequently proving fatal to the animal.

When the membranes—placenta, happen to be retained too long after calving, they are likely to give rise to milk fever; decomposition taking place, the dead and putrid elements are absorbed by the mucous surfaces of the womb, and thus a poison is carried into the blood vessels. Sometimes the discharges from the uterus may be re-absorbed and produce this; such discharges, we wish to point out, as are the result of morbid action, itself the offspring of the effects of difficult labour.

Cows of all ages are liable to it; over-driving and exposure, together with bad feeding and management are fruitful causes, as engendering a state of system in which erysipelas is most readily produced.

The signs of milk fever are very remarkable, and when once accurately noted, may be easily remembered. It rarely appears before calving, but mostly appears soon after, and the fatality or mildness of the disease may generally be estimated by the time at which the animal first appears to be attacked. Early cases are generally the most severe, of longest duration, and most fatal; the longer the cow remains free from the attack the more likely she is to have the disease in a mild form and recover early. The usual course for the signs to appear within a few hours after delivery, but many cases are delayed even until the third and fourth day. In the first instance, the signs rapidly follow each other; in the latter, they are slow and gradual, and seldom gather the intensity to be seen in the first.

The early symptoms are defective appetite, rumination has ceased, and the milk has diminished largely. The cow is restless, and wanders about, moaning plaintively. There is evidence of fever, as cold legs, hot mouth, and increased temperature at the roots of the horns. If the thermometer be passed up the rectum, an increase of animal heat is shewn by it also. Pains begin in the abdomen, and the cow switches her tail, stamps, and kicks at the belly with the hind legs. She turns the nose frequently to one of the flanks, moans and tries to lie, but evidently does this as carefully as possible, often remaining some time on the knees before finally settling down. When she rises, the same peculiarity may also be noticed. As the case proceeds, pain becomes more constant and acute; the bowels are confined, the pulse is rapid, and possesses no volume, but is small and thin—like a wire beneath the finger; the paunch swells from the formation of gas inside, and the cow strains violently; the head is thrown from side to side, and shortly she becomes insensible, when death speedily follows.

After death we may observe the uterus is inflamed throughout its structure, and besides large quantities of straw-coloured material being present, pus is not unfrequently found,



with here and there large patches of dark red, purple, or even black patches, and a chocolate-coloured fluid sometimes in tolerable quantity inside. The same conditions apply to some other organs of the abdomen, and the brain is found to be congested, as a result of the blood poison engendered late in the stages of disease.

In the treatment of this disease great reliance is to be placed on *early bleeding* and *purgation*; but this must be regulated entirely by the state of the pulse. If insensibility have set in, and the volume of the artery is small, beats weak and rapid, no good is to be effected by bleeding; it will only then hasten death. When the artery is full and the pulse is beating hard and vigorously, then we may bleed and purge with advantage. The quantity taken must not be regulated by the size of the beast, but by the pulse. While the blood flows the finger should be on the artery, and, waiting for the first signs of diminution and weakness, the operator should be occupied by nothing else, that he may be ready to close the wound and prevent fainting.

The purge should be a brisk one, an extra quantity of salts being employed, say one-half or two-thirds more than for a mild dose, with which 2 or 3 ounces of ginger and 2 lb. of treacle should be mixed, and the whole washed carefully down with at least 3 quarts of warmed ale. Injections of soap and water are to be given every thirty minutes to promote the action of the salts, and the skin should be sponged with tepid water, and three or four men set to work to wisp it down with soft haybands until proper warmth and circulation are established, after which the animal may be left for two or three hours covered with sacks and straw heaped over her body.

By this time a veterinary surgeon has probably been called, who will conduct the future treatment of the case; but if such assistance be not forthcoming, we may advise the following draught:—acetate of ammonia, 4 ounces; nitric ether, 1 ounce; tincture of aconite, 30 drops. Great care, however, is required

in the future use of this remedy, as awkward results are not uncommon in the hands of strangers to medicine. It will be safer to omit the aconite, and persevere with the acetate of ammonia and nitric ether every four hours, until the pulse becomes slower and fuller, which, together with the return of circulation, warmth, and usual cheerfulness, may be estimated as very favourable signs.

When it so happens that blood-letting is not admissible in the outset, the purge should be given only, the rest of the treatment as detailed being carried out; and when insensibility has set in, the medicine must be passed down the gullet by means of the probang or stomach pump, as any other means will choke the cow at once.

When pain is severe and constant, some relief may be obtained by injecting various fluids beneath the skin, as tincture of belladonna, chloral-hydrate, &c.; indeed, this promises to become one of the most useful branches of practice, and by which greater results follow than by any other known method.

#### APOPLEXY OF PARTURITION.

The third form of disease to which cows are liable at the time of calving is known as parturient apoplexy, or parturition fever. It is an affection totally different from the two preceding kinds which we have already described, in no point whatever agreeing with them, and therefore, should not, as is too frequently the case, be mistaken for one of them.

The points of difference most to be relied upon are as follows:—It never attacks cows in lean or poor condition that are bad milkers, but is common among those that are prone to lay on flesh rapidly, regardless of breed, and more especially if they are heavy milkers. At one time it was thought that cows of the most improved breeds were only the subjects of the malady, but later investigations have decided that as among them are many that are worthless for the dairy, the supposition is

groundless. With regard to age, heifers at the first and second times of calving do not suffer from this kind of fever. It appears that the system must have reached a stage of almost completion in development before it is liable to it, therefore, we find that cows suffer most at the third and later periods of parturition; and it is also a fact worthy of note, that when an animal has once been affected and recovered, she is likely to have a second attack at the next parturition, and that is almost sure to prove fatal; in fact, the average losses from attacks of parturition apoplexy are not less than 95 per cent.

It is also remarkable that this disease does not follow abortion, premature labour, flooding from the womb, retention of the afterbirth, or when the process of calving has been preternaturally long, difficult, and tedious; all of which, it appears, being causes which operate strongly in limiting the tendency to it. Parturition apoplexy is undoubtedly a blood disease, partaking of the same nature and characters as "black-leg" and various other forms of blood affections, which have already met with some notice in these pages. It is due to high feeding, especially when the practice is attended with close confinement, and still more so when the cow is naturally a heavy feeder and milker, and likely to make much blood. Easy-tempered, docile animals, and those that will make flesh even on poor kinds of food are favourable subjects. It is reasonable to suppose that as long as such an animal has inside her a large growing calf, demanding much nourishment for its flesh, bones, and numerous organs, the system of the mother knows no inconvenience; but vital processes once fully established are not suppressed in a short time, and the various organs cannot rapidly accommodate themselves to sudden changes: it, therefore, happens that, as soon as the calf has reached the stage necessary for its expulsion, and no longer makes such demands upon the mother, the large supply having not diminished, the whole of the organs are flushed with blood highly charged

with rich materials, and the brain being foremost among the sufferers, its vessels often give way and burst, and death inevitably follows after some hours of extreme violence, during which the creature is unconscious.

The victims of this affection are not unusually attacked and even die before calving, in which case it is severe, and seldom extends over 36 hours from the first-observed sign. Generally many hours proceed before the owner or attendant discovers anything wrong, and in this way much mischief is made, when at length the cow becomes excited, the eyes are staring, and she shakes her head frequently; if she walks she appears weak, and staggers as if the loins were at fault, and shortly the hind legs double beneath her weight, and she falls awkwardly to the ground, having no power to put herself into a natural or comfortable position. All other signs now come on in very quick succession. The eyes are bloodshot, and blindness follows, and the head is thrown from side to side with such violence as to cause the horns to slough, and sometimes to fracture also the bones within; and thus affairs go on for 12 hours or more, weakness becoming greater, and death taking place sometimes suddenly from suffocation. After death the windpipe is often found full of half-digested food, which has passed up the gullet to the mouth, partially as a result of pressure and probable withdrawal of nervous power, and during the heavy inspirations is drawn towards the lungs. The third stomach is also full of hard masses of food, and the bowels are more or less involved. The brain is heavily charged with blood, and frequently large quantities of clot is found at its base, extending to the spinal cord. The bladder is full of urine, and sometimes bursts under the pressure and large quantity; it should, therefore, always be the practice to empty the organ by artificial means as soon as the cow is down, and also frequently afterwards, that such an event may be avoided.

The cure of parturition apoplexy is a most uncertain affair, except in those instances



where a practitioner happens to see the animal before she is down, and, having discovered the first signs, while the pulse is full and strong, he abstracts blood largely, and succeeds in moving the bowels by purgatives.

It is of no use trying homœopathic measures here, a dose and a half, at least, of medicine, should be given, salts forming the basis, with which a few drops of croton oil and 2 or 3 ounces of ginger and treacle, as already detailed, are added.

Clysters of warm soap and water are of the utmost importance, and should be used every half-hour until the bowels are moved. The body requires warmth, and it is well to apply smart friction after the skin has been sponged with tepid water. In giving the medicine, the same care is required as in milk-fever to avoid choking, and as soon as any indication

of insensibility are evident, the stomach-pump or probang must be used instead of the bottle.

After a full purgative dose has been given and other details are carried out, such as making the animal as comfortable as circumstances permit, she may be left in the care of an attendant for a couple of hours, at the end of which two ounces of sal-volatile spirits may be given in one quart of cold ale, in which an ounce of ground ginger is stirred. This dose may be given every four hours until the animal either recovers, or shews indications of no improvement or rapidly increasing weakness and insensibility. Repeated bleeding is not at all a wise proceeding ; if the first large abstraction has not reduced the tendency to apoplexy, a second will only hasten death ; the only possible good that can be obtained is by the use of the stimulant already named.

## Dairy and Poultry Yard.

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### CHEESE FACTORIES IN ENGLAND.

THE experiment of making cheese in factories, which was commenced in Derbyshire, is now an undoubted success. Commenting on the last Report of the Committee before they handed over the Longford and Derby factories to the farmers, we observed that three points seemed clearly established -- that in the factories, in comparison with private dairies, more cheese was produced from the same quantity of milk, that the cheese fetched a higher price, and the cost of production was less. These three points established, there is no room left for discussion. But the advantages of the factories have since that report been more fully proved. In spite of powerful opposition, the cheese has made its way in public favour. This year 70 tons of cheese, the produce of the factories at Derby, Longford, and Windley, have been sold at an average price of 83s. per cwt.; and some has fetched as high as 90s. At the Derby cheese fair, whilst farmer's cheese generally ranged from 69s. to 76s., the factory cheese was disposed of from 81s. to 83s., and there is no difficulty in clearing off the make before it is sufficiently ripe for use.

But the adoption of the plan of making cheese in factories promises further and even more important results. It clearly established the fact that milk turned into cheese did not on an average yield to the farmer more than 6½d. per gallon for the season. The advanced prices which have been secured for the article as produced in the factories, somewhat raise these figures, but 7½d. per gallon would probably be the utmost that could be secured for milk converted into cheese. Meanwhile milk was selling for domestic use in Derby at 1s. per gallon in summer, and was raised to 1s. 4d. in the winter months. The proprietors of the Derby Factory, says the *Derby Reporter*, saw an opening for the easy disposal of a portion of their milk on better terms than they could obtain for it when turned into cheese. Accordingly it was announced last spring that pure milk could be had morning and evening at the factory at 2d. a quart, or 50 per cent. below the price at which it was delivered by the ordinary milk-sellers. The milk was found to be excellent. The cream thrown out excited the admiration of housewives, and the demand rapidly increased, and the sale during the year has been very large indeed. But as the season advances, the milk yielded by cows becomes less in quantity and richer in quality, and accordingly the price has just been raised to 2½d. per quart, and at this price it is intended to continue the supply during the winter, and we believe it is in contemplation to open at least one more place of sale in another part of the town. This development of the factory principle has not only been advantageous to the producers of milk, but has proved a still greater benefit to the consumers. We believe that by far the greater part of the milk sold at the factory represents, not a transfer of demand from the ordinary milk-sellers, but an additional consumption. The advantage of an increased use of so nutritious and wholesome an article of food will not be questioned, and can hardly be estimated. The health of the young is deeply concerned in the supply of milk, and it would be difficult to name any means of promoting the growth of a vigorous popula-



tion more effectual than the extension of the consumption of this article.

But the question expands into far wider proportions. The market for pure milk at a moderate price is practically boundless. For years, until lately when the Act against adulteration has begun to be applied, genuine milk was not to be bought in London, or any of the largest towns in the Kingdom, and with difficulty almost anywhere. The principle of association applied to turning milk into cheese suggests another and still more profitable outlet for the produce of the dairy. The obligation imposed on the London milk sellers to sell milk instead of milk and water, has led to the price being raised to 5d. a quart, or 20d. a gallon. Now, it is pretty clear that 8d. per gallon would be a very good price for the farmer. The railway company will convey it to London for 1d. per gallon, and hence milk can be taken, with advantage to the farmer, to a London station at 9d. a gallon. Even raising the first cost to 9d., this leaves no less than 10d. per gallon, or as much as the whole cost of the milk and its carriage to London, as the price of retailing it. Surely this is an economic failure, and so great a margin may be capable of reduction and partial division between the consumer and the first producer. It is said that in London everything must be taken to the doors of the consumers. But this may not stand the test of competition. The experiment would be well worth trying of opening a few depôts for milk in parts of London chiefly inhabited by decent working people, widely making known that pure fresh milk could be had at a low price, and we shall be surprised if customers do not flock to the place as they have to the Derby cheese factory. It has been proved that milk can be safely carried considerable distances. Four years ago the Midland company only yielded on some pressure the

concession of carrying milk by train, regarding it as troublesome and too trivial to be worth special arrangements. But at the present time, so greatly has the trade expanded, that upwards of 16 tons of milk from Derby and stations near it are daily forwarded to London.

The metropolis is only the largest of hundreds of towns most inadequately supplied with milk. Near to us lies Birmingham, with a population of nearly 400,000, and the great district known as the Black Country, extending between that town and Wolverhampton and Walsall. There is Sheffield, with not far from 250,000, Manchester is not far off, and Nottingham is at our doors. Already a Derbyshire farmer sends his milk, with a most satisfactory result in the shape of profit, to Middlesboro'-on-Tees, the centre of the growing iron district in England; and it needs, we believe, only combination, and a moderate amount of common sense and energy, for the dairy farmers to obtain a market for their produce more profitable than cheese making, however well carried on, and free from the competition of the United States, which will always keep down the price of cheese, but cannot interfere with the supply of fresh milk. The distribution of commodities by means of railways is, we are convinced, in its infancy; and the farmers of Derbyshire, who have had the wisdom to adopt co-operation in producing and disposing of cheese, have here a still wider field of profit open to judicious enterprise. It is a maxim of economists that, the closer the producer can be brought to the consumer, the better for both; and if the dairy farmers will avail themselves of the means available for bringing their milk within easy reach of the thousands of well-paid workmen, they will find their reward, as well as do the country a great service.

## The Country Gentlewoman.

### MANAGEMENT OF PLANT CASES.

PLANT cases may be termed miniature greenhouses or conservatories, subject to the same rules and regulations as their larger and more pretentious neighbours, and are equally capable of giving as much pleasure and entertainment according to their size.

#### HOW TO MAKE A PLANT CASE.

Make the box in any form you may desire; let it be about 6 inches deep; this should be well painted inside and out. At one end, in the bottom, insert a small faucet or wooden plug, to allow the water to pass off if necessary. Put in the bottom about 2 inches of



*Adiantum excisum multifidum.*

These cases may be made any shape or size, to suit individual taste. Some prefer them octagonal, others quadrangular. They are especially adapted to the growth of Ferns and other cryptogams, but, by proper attention to watering and ventilation, many flowering plants may be grown successfully in them. Each class had better be grown in separate cases, as they require different treatment.

drainage—it may be broken brick, cinders, or anything of a porous nature that will absorb water, or allow it to pass through freely. Cover the drainage with decayed sod or Moss, to prevent the soil from mingling with it, and on this put as much good compost as the box will hold, composed of sand, loam, and leaf-mould, about equal parts. In this soil may be planted a variety of plants of



small growth, according to taste. The upper portion consists of a permanent framework of wood, or it may be made of iron or zinc. It had better be glazed on all sides and top. The frame may rest in a groove sunk in the box.

Give the plants a good watering, then put the frame on, and they will not require any more for many weeks. The frame should be taken off for half an hour every morning to admit air, but do not let a cold draught strike

It must be borne in mind that Ferns, although they like a moist atmosphere, cannot thrive when their roots are in water; hence, to obtain the best results, they must have good drainage. Then, a frequent sprinkling over the fronds will not injure them, but will be rather beneficial. They delight in a compost of leaf-mould, well decayed, and a little sand.

In a Fern case of 2 or 3 feet in diameter, there is room for a great deal of taste to be



*Gleichenia circinata* var. *glauca*.

them. For Ferns and Mosses, it will not be necessary to remove the top oftener than once a month.

Perhaps the most simple, and at the same time, tasteful plant case, is a bell glass, with terra-cotta dish; but these are necessarily small, and the variety of plants must correspond.

After these general remarks, it will be well to give a more detailed description of the mode of treatment best adapted for Ferns and Mosses, and these are more generally grown in this way than other plants.

displayed, not only in the arrangement of the plants, but in building miniature rock-work. Many of the choicest and most delicate Ferns may be placed on these elevations, and will then shew to great advantage. Care must be taken not to overdo the thing by putting in too many ornaments. Anything that is glazed or highly coloured will be out of place, and will be liable to detract from the quiet beauty of the little fernery.

The best material for building up the rock work and arches is coke. By making a thin mixture of cement and water, and dipping



the coke in, a nice sober brown stone is imitated, which will soon be covered with natural Moss, adding much to its beauty. Another article which I have used with good effect is broken pumice-stone.

#### VARIETIES OF FERNS TO BE USED.

I will append the names of a dozen Ferns

these Ferns can be procured of Mr B. S. Williams, at the Paradise Nurseries, Upper Holloway, who has been so obliging as to favour me with the illustrations of the rarer kinds.

These are very ugly names for such pretty plants, but they will not appear so hard when we become better acquainted with them.

I will not try your patience by naming the



*Lomaria ciliata.*

that may be grown in a case with ordinary care:—

*Asplenium*, *Adiantum nigrum*, *Adiantum germanicum*, *Adiantum fontanum*, *Adiantum refractum*, *A. excisum multifidum*, *Doodia aspera*, *Lomaria ciliata*, *Gleichenia circinata* variety *glauca*, *Pteris argyrea*, *Davallia canariensis*, *Polypodium sanctum*, and the very distinct *Trichomanes reniforme*. All

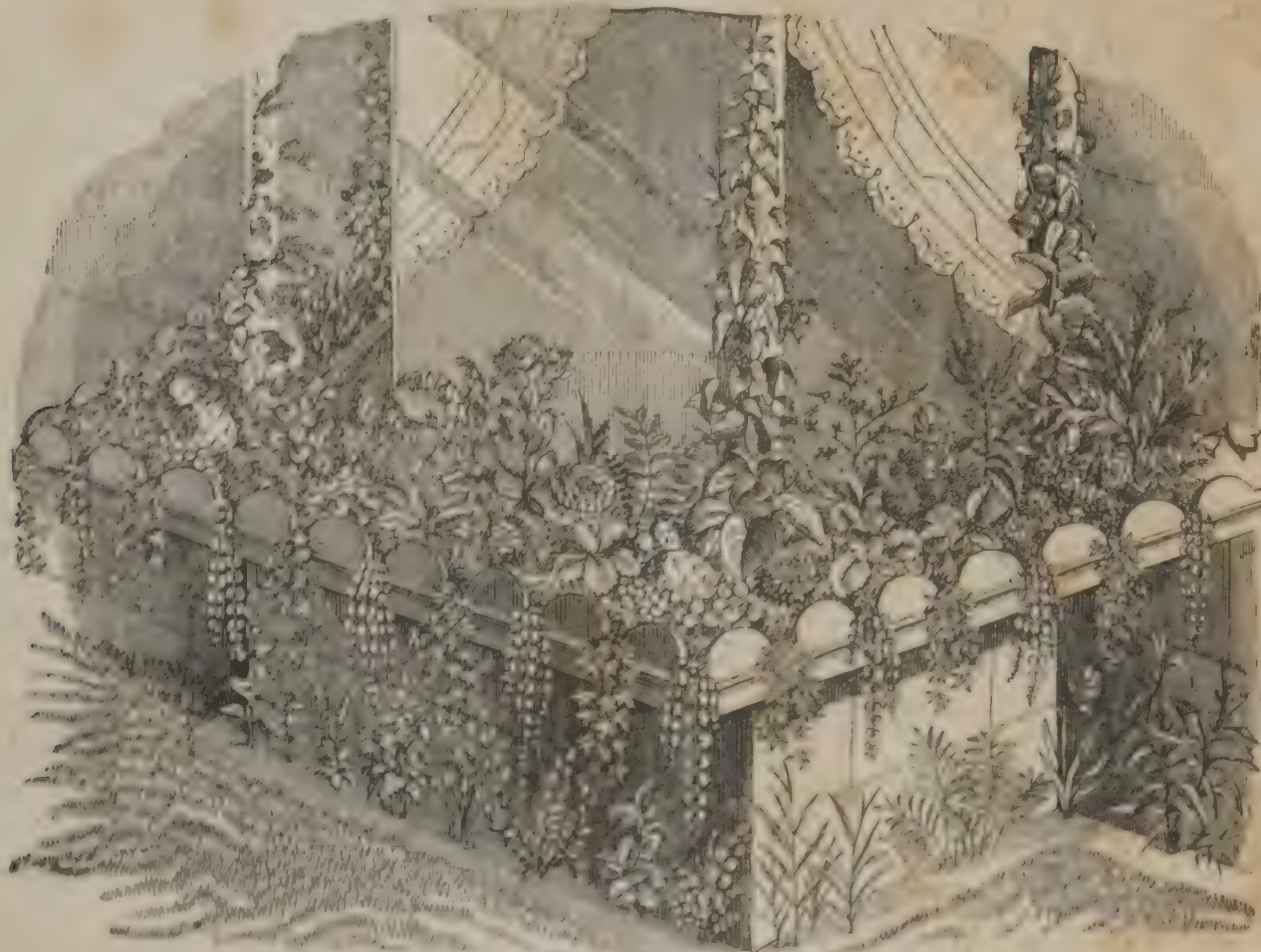
many pretty Mosses (or, properly speaking, *Selaginellas*) that help to beautify the Fern case. Suffice it to say, they are all worthy a place in our fernery.

There is one more point that should not be forgotten: keep them in the light, but not in the sun. A north or west window will be found the best for them—a situation where few other plants would thrive.—*W. Franks.*



# WINDOW GARDENS.

AMONGST the delightful industries which are engaged in at home, may be counted that of Window Gardening. Modern taste has inclined the possessor or occupier of a house, be it a villa or a portion of a tenement, to adorn it. If it, perchance, be in a position where nothing in the way of ground can be made available, see something to charm them; and if they begin to investigate the manner of the designer's work, and look into the simple but beautiful plants that have wrought out the idea, they will get a most agreeable surprise. Instead of this elaborate-looking design being costly to begin with, it will be found by Mr Barr's own description to be



A Window Garden—designed by Messrs Barr & Sugden, Nurserymen.

When the attention is turned towards the window. The clumsy decorations of the past are fast giving place to what is truly beautiful, and so we have a charming picture of Nature that we can look at from the inside as well as from the outside. Ladies or gentlemen tending to the picture before them, of Mr Barr's decorated window will

particularly cheap, and then the plants, as things go now a days, are to be purchased at a reasonable figure. This can be made an ever-changing scene of interest, from late autumn, during winter, spring, and up round the annual cycle. Such designs as these are particularly eye pleasing, because pots can at all times be concealed, and the trailing plants



be made available for clothing the front of the enclosed space, while bulbous plants, in their gorgeous colouring, can be made to bejewel the surface, as Cowper says—Can any one want occupation, who has such a nice little field to cultivate and care for as this? Why, indeed, should people of means be idle who have so much before them to enjoy? But let Mr Barr speak upon a subject, than whom there is no one more qualified.

“Of late years domestic horticulture has been making considerable progress. Plants are now much more extensively associated with daily in-door life. Thus, the window flower-box has become an institution, and some of the finest examples of this style of gardening are to be found in the London squares, where it is no unusual thing to see the façade of the house covered with the richest verdure, and the windows and balconies glowing with the most brilliant and varied hues. But beyond the confines of London, the flower-box might assume with advantage the form of a window garden; and as this is a subject which for many years has engaged our personal attention, the accompanying woodcut will suggest what may be attained in this way. This is now the third season since our window was planted, and it has gone on improving so that in the hottest day of summer and the coldest day of winter it is full of attractions. The Saxifrage, the Sedum, the Sempervivum, the Campanula, the Lithospermum, &c., are one or other in flower; and as regards bulbs in autumn, we have the Sternbergia, Zephyranthes, Autumn Crocus, and Colchicum; following these come the Snowdrop, the Spring Crocus, and Scilla sibirica; and in window gardens where a greater depth of soil is given than our illustration represents, the Hyacinth and the Narcissus may with advantage be planted. When these go to rest, it is simply necessary to remove the dead foliage, leaving the roots undisturbed. So that a window garden, once planted as we suggest, if a sufficiently wide range be taken in the selection of plants, be-

comes a horticultural microcosm in which is exhibited the ‘great dial of the year,’ whereon—

‘The seasons pass and strike the quarters.’

“Each plant in its season is a source of interest, and develops its own peculiar beauty. There is the autumn tint, the winter green, the freshness and variety of spring, with the flowers of summer.

“The construction of the window garden is of the simplest possible character, so that almost any one can make it, or have it made by an ordinary carpenter. We used yellow deal, and the width may range from 12 inches to 2 feet, according to circumstances. At the back of the garden, as illustrated, is a strip of wood 3 inches in height, which can be higher or lower according to taste, and scalloped or plain. The front is ornamented; the structure, while resting upon the sill of the window, is raised on blocks  $\frac{1}{4}$  inch to allow of drainage, and preserve the sill from damage. The soil used is a compost consisting of two-thirds road-scrapings, one-third loam, and, if convenient, an addition of leaf soil perfectly decayed. The soil is then undulated according to taste, and a few stones or shells worked in judiciously, so as not to be conspicuous, then planted so as to be most attractive to the room. Between the scollops in the front a trailer should be inserted, and a Sempervivum to form a rosette between the scollops, or a little bit of rock with a Sedum or Saxifrage growing over it. When shells are introduced, we prefer a Sempervivum growing out of them, such as montanum, or the Cobweb House-Leek.

“The class of plants most desirable for a window garden are the dwarf-growing Alpines, with just sufficient elevation to break the lines, and from the following genera a good selection can be made:—Alyssum, Androsace, Antennaria, Arabis, Arenaria, Armeria, Artemisia, Arum, Aster, Aubrietia, Bambusa, Bellium, Calystegia, Campanula, Cerastium, Cheiranthus, Dianthus, Draba, Dielytra, Echeveria, Erinus, Gypsophila, Helianthe



mum, Hepatica, Iberis, Iris, Linaria, Linum, Loxus, Lithospermum, Lychnis, Lysimachia, Molinia, Myonotis, Nicotiana, Opuntia, Oxalis, Phlox, Potentilla, Primula, Santolina, Sibthorpia, Soldanella, Spargula, Spiraea, Saponaria, Saxifraga, Sedum, Sempervivum, Silene, Statice, Thalictrum, Thymus, Trifolium, Viola, Veronica, Vinca, &c., according to situation and aspect. While of bulbous plants, add Sternbergia lutea, with its large yellow blossoms in autumn; Zephyranthes candida, with its silvery white blossoms in autumn; the Autumn Crocus and Autumn Scilla: and for spring blooming, the intense blue Scilla sibirica, the Spring Snowflake, the Snowdrop, the Crocus, the Miniature Hyacinth, the Narcissus Bulbocodium, Nanus, and Minimus, the Bulbocodium vernum, the dwarf early single Tulips, Iris persica and reticulata; and, besides these, many other bulbous and tuberous-rooted

plants would contribute their charms, so that within a limited space a garden may be had with representatives from every temperate clime. The invalid who can only be moved in a chair can tend this garden, while those who are much confined in-doors have only to turn their eyes to the window to enjoy the refreshing influence. To children it is a rare treat. The aspect is homely, the subjects are chaste, many of them peculiar in form, and in diversity, matchless; so that to all, whether young, middle-aged, or old, these congregations of plants have a charm which is known only to those who have made such collections. In their culture there is an absence of all difficulty, and the window garden, planted as it appears in our illustration, simply requires to be kept free from weeds and attended to with water. This done, there is no limit to the duration. The cost is the investment, the daily pleasure is the interest.

### DRIED FLOWERS FOR WINTER DECORATIONS.

THE element of cheapness is a consideration with many families who desire to have flowers in winter. To go to the expense of keeping up anything like a display of even the commonest of flowers, is no small matter. Thousands and hundreds of thousands love flowers, and cut flowers in particular, when the festivities that usually

These baskets of Immortelles, with sprays of Grasses and other suitable things, are now made up with so much nicety, the art of arrangement is so complete, that the novice



Ornate Small Basket



Flower Basket on Tripod

take place during our darkest and coldest seasons come off, and right glad many of them are when they can secure a limited number of dried flowers, as a makeshift, and

at first sight might be readily excused for mistaking them for fresh flowers; and all, learned or unlearned in flower lore, are compelled to admire them. Even those artifi-



cial flowers that find their way to our market are amazingly well done. Gloxinias for instance, in form of leaf, and footstalk, and flower, are quite a first-rate work of art. But the dried flowers have special claims, owing to the time which they keep in a state of

as probably the most elegant receptacle for dried flowers. The oblong outline is an advance on ordinary decoration, and suggestive of being moved from one table to another, from one room to another.

The Swiss baskets, in round and oval form,



Bouquet for Table.



Round Swiss Basket.

freshness. A basket well taken care of, and kept out of the way of dust and smut, will keep good for months.

We present an assorted lot of them in the subjoined engravings, as they are offered in commerce by Dick Radclyffe & Co., to give

are simple in design, and so cheap that no one need be without one or more of them. They can be had from eighteenpence upwards, and looking to the time they keep they cannot be considered expensive objects of adornment. (Or if a hanging basket should



Basket of Dried Flowers.

our readers an idea of how these dried flowers and Grasses and Mosses can be made available. There is first the basket without handle, fig. 116, which presents the group after the ordinary table bouquet form. There is in fig. 117 a representation of what is offered

be preferred, the spray of the Grasses would invest it with no ordinary attraction. Even the basket on the tripod is an object worthy of imitation, shewing how a master's hand "can well dispose the gay diversities of leaf and flower."

THE END













